



Operation Manual

UNiclean B 17

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1 Introduction

This chapter contains the basic information about this manual. This chapter contains the information about the used conventions and the CE-certificate for the machine.

1.1 About This Manual

The manual is a part of the machine and is to be kept at the machine. The instructions from the third-party suppliers are also to be kept at the machine.

1.2 Used Conventions

The writing conventions that are used in this manual are as follows:

Writing Convention		
Name	Example	Description
Section information	Chapter 1, 1.1, 1.1.1	The chapter numbers are given in a sequence. The chapter number starts with the number 1.
Figure number	<i>Figure 1</i>	The figure numbers are given in a sequence. The figure number starts with the number 1.
Callout	1	The elements in the figure are identified with position numbers.

1.3 Intended User

Only Rieter-approved personnel are permitted to operate the machine and to do the maintenance work and the repair work at the machine. The personnel must know the content of this manual and how to find the related information.

More information about the intended user is given in chapter 2 of this manual.

1.4 Identification of the Operation Manual

The operation manual can be identified through the material number and the editorial version. The identification properties are specified in the legal notice.

1.5 Instruction of Personnel

Safety Advice for any Person in the Vicinity of the Machine

Safety devices

General Safety Information ▶ 21

UNiclean ▶ 32

Operation Guidelines for any Person Involved with the Machine

Testing the Function of the EMERGENCY STOP Buttons ▶ 87

Testing the Function of the Main Switch ▶ 87

Adjusting the Discharge Roll

Opening Doors when Power is Available (Door Lock) ▶ 83

Opening the Doors in De-energised Status (Door Lock) ▶ 83

Pull out the Waste Trough / Open the Flap ▶ 82

Setting Up, Changing Over, Adjusting

Adjusting

Cylinder ▶ 56

Stripper Roll ▶ 57

Grid ▶ 57

Cylinder ▶ 58

Measurements ▶ 59

Waste Extraction ▶ 59

Explanation of the Troubleshooting Process

1. Always consult Part 5 of the operating manual in the event of a fault.

Explanation of the Maintenance Tasks

1. Go over the maintenance and lubrication schedules of Part 4 with maintenance personnel and mechanics.

Explanation on How to Handle the Electronic Documentation (e-DOC)

Navigating through the e-DOC (Electronic Documentation) Program ▶ 100

Opening e-DOC ▶ 100

Selecting the Language and Accepting the License Agreement ▶ 101

Opening the Home Page ▶ 101

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<i>Entering the Fault Code ▶</i>	<i>110</i>
<i>Rectifying Faults ▶</i>	<i>110</i>
<i>Directly Opening the Order Form for Spare Parts ▶</i>	<i>110</i>
<i>"Filling" and "Saving" the Shopping Basket ▶</i>	<i>111</i>
<i>Closing the e-DOC Program ▶</i>	<i>111</i>

1.6 How to Use the Operating Instructions

1.6.1 Symbols in the Document

Danger symbols

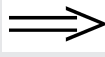
	General danger spots
	Danger of falling
	Suspended load

		Risk of injury
		Risk of injury due to part of the body being pulled in
		Risk of injury due to being pulled in
		Dangerous voltage
		Shock from capacitor
		Danger due to automatic start-up
		Laser beam

Prevention symbols

		Use eye protection.
		Wear protective footwear.
		No admittance.
		Shut down power before working on the installation.
		Turn off main switch and secure with a padlock.
		Activating an emergency stop.
		Do not touch.

Symbols in the document

	The page indicated refers to the currently selected chapter.
	More information on this subject can be found on the page indicated
	Wrong application, not permissible
	Correct application, OK
	Result! For example, after a job sequence unit

1.7 Legal Stipulations

1.7.1 Liability

If, contrary to regulations, the assembly of new or existing plant is carried out by a third party, RIETER MACHINE WORKS LTD. declines all liability.

The auxiliary agents supplied by Rieter such as crane, roll lifter etc. must be used only at the places and on the types of machine intended and for no other purpose. Rieter Machine Works Ltd. declines all responsibility for any damage due to inappropriate usage of the auxiliary agents.

If the machine is used for any purpose other than that for which it is intended, Rieter Machine Works Ltd. Declines all liability.

1.8 CE-Certificates and Standards



EC / EU DECLARATION OF CONFORMITY

Maschinenfabrik Rieter AG
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F +41 52 208 70 60
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Winterthur, 2. March 2017

Maschinenfabrik Rieter AG declares that the product

UNiclean B17

Serial Number: 40023917-xxxx

fulfills the following relevant provisions:

2006/42/EC	EC - Machine Directive
2014/30/EU	EU - Electromagnetic Compatibility Directive

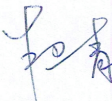
including their modifications

Used harmonized standards (including modifications):

EN ISO 11111-1:2009	Textile machinery - Safety requirements Part 1: Common requirements
EN ISO 11111-2:2005	Textile machinery - Safety requirements Part 2: Spinning preparatory and spinning machines
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines Part 1: General requirements

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Head Product Unit Blowroom



Patrick Schelling
Head Development Blowroom

Figure 1: EC declaration of conformity

1.9 Preface

The information contained in these instructions is intended to assist the smooth, trouble-free running of the machine and the safety of operators and maintenance personnel.

The instructions contain important notes on how to operate the machine safely, properly and efficiently. By observing these instructions you can help prevent danger, reduce repair costs and downtimes, as well as increasing the reliability and lengthening the service life of the machine.

The operating instructions must be permanently available at the place where the machine is located.

The instructions must be read and followed by everyone who is assigned to work on the machine.

The instructions correspond to the technical state of the art at the time of going to press. Rieter reserves the right to carry out modifications.

Inquiries concerning Service information should be addressed to the Service Centre responsible for your region.

The instructions must be completed as necessary by adding directions based on existing national regulations for the prevention of accidents and the protection of the environment.

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2 Safety

This chapter contains the information about the machine safety. This chapter contains the information about the location of the safety labels, the safety equipment, and the danger zones in the machine and around the machine. This chapter contains information about the intended user.

2.1 Introduction

This chapter contains information about the machine safety and the machine safety symbols. To know and to obey, all the safety instructions are necessary for the personnel that operate, keep, and repair the machine.

2.2 General Safety Information

This machine has a state-of-the-art technology and supplies a high standard of operational reliability.

The standards and directives applied during design, production, and configuration are listed in the EC/EU Declaration of Conformity and the manufacturer's declaration. Obey the national safety regulations applicable in the country where the machinery is operated, as well as the mill safety regulations and the accident prevention regulations!

2.3 Safety Messages

The safety messages contain a signal word, a safety symbol, and the safety instructions.



DANGER

If the safety instructions are **NOT** obeyed, the situation causes death or irreversible injuries.



WARNING

If the safety instructions are **NOT** obeyed, the situation can cause death or injuries.



CAUTION

If the safety instructions are **NOT** obeyed, the situation can cause small injuries.

Structure of the Safety Messages

Each safety message contains the elements that follow:

- Safety symbol
- Signal word
- Type and source of the danger
- Consequences of the danger if not prevented
- Instructions to prevent the danger

2.4 Product Safety

This section contains the information about the product safety.

2.4.1 Danger Zones at the Machine

2.4.1.1 Mechanical Danger Zone

2.4.1.2 Electrical Danger Zone

2.4.2 User Qualification and Hierarchy

This chapter contains the information about the 3 different user levels that are related to the type of the tasks that are done at the machine:

Operators (Level 1)

The operators are approved personnel that do the cleaning tasks and the daily maintenance work at the machine.

- The operators know the machine safety and how to keep the machine safe.
- The operators use the personal protective equipment if the personal protective equipment is necessary.
- The operators do a regular training to operate the machine safely.
- The operators know the operation manual and, specially, the safety chapter of this manual.

Supervisors (Level 2)

The supervisors are approved personnel that do the work at the machine.

- The supervisors are permitted to do the configuration of the specified machine parameters, to do the maintenance work, and to give instructions to the operators.
- The supervisors did the Rieter training courses and got the certificates.

Technicians (Level 3)

The technicians are approved personnel that do the work at the machine. The technicians have expertise that was given by Rieter about the adjustments and the maintenance of the machine.

- The technicians make changes to most of the machine parameters.
- The technicians are permitted to give instructions to the supervisors and the operators.
- The technicians regularly do the Rieter training courses and get the certificates.

2.5 Property Damage Notice

This signal word NOTICE shows the information about the damage of the machine or close objects. If the NOTICE information is not obeyed, damage to the related property occurs.



NOTICE

This signal word shows that the user must obey the given procedure or message to prevent a property damage.

2.6 Emergency Information

Emergency Stop Button

The emergency stop button is pushed to stop the machine immediately in an emergency.

2.6.1 Personal Injury

If an accident occurs, do the first-aid treatment. Make a call to the local emergency center.

Tell a report of the emergency:

- Who makes the call?
- What occurred?
- When?
- Where?
- How many persons have an injury?
- Do other dangers occur?

2.7 General Notes on Safety

2.7.1 Safety Precautions

Intended Use

This machine is intended solely for the processing of cotton and 100% man-made fibers, along with blends of such materials. See “Raw materials for processing” in the “Technical data” chapter.

Only closed rooms with suitable air-conditioning for spinning technology are to be used for machine operation.

The machine is to be used only as intended. Operate the machine only according to this operating manual.

Any use beyond the intended purpose is regarded as improper use, in particular using materials hazardous to health, such as asbestos, glass, etc.

Technical State

Prerequisites Make sure that the criteria are obeyed:

- ✓ If the machine is operated while in a defective state, safety, proper functioning and availability will be compromised.
- 1. Operate the machine only while it is in a technically fault-free state.
- 2. Comply with the maintenance schedule.
- 3. Use only original spare parts (indicated in the spare parts catalogue).

Prerequisites Make sure that the criteria are obeyed:

- ✓ If the operating behavior of the machine changes, check the machine for faults.
- 1. Remedy the faults immediately.
- 2. Do NOT make unauthorized modifications or changes to the machine.

Availability of the Operating Manual

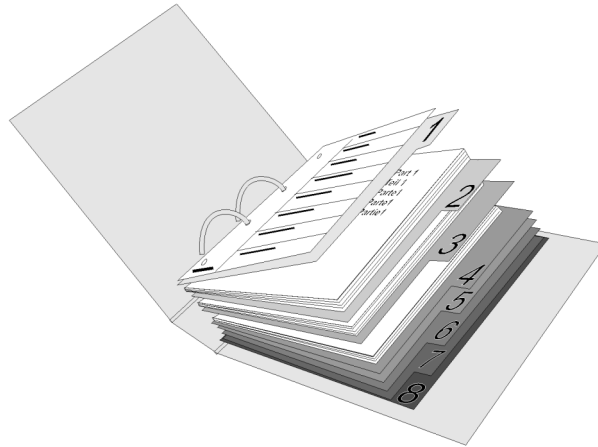


Figure 2: Operating manual

The operating manual must be available to the personnel involved.

Personnel must have read and understood the operating manual, prior to commencing work.

Safety Awareness

For reasons of operability, it is not possible to completely eliminate all sources of danger.

“Overestimation of one’s capabilities” is a major source of danger.

Even routine tasks require full attention at all times.

Qualification of Personnel

Unqualified personnel cannot recognize risks and are therefore exposed to dangers. Only technically qualified personnel are to be assigned tasks at the machine (described in this operating manual).

Installation, operating, maintenance and service personnel must have been trained.

Have the operating authority ensure that personnel comply with the locally applicable rules and regulations for safe and hazard-conscious work.

Have the operating authority specify and make known the responsibilities for tasks. Keys and passwords are to be given to assigned personnel only.

Qualification of different types of personnel:

Maintenance technician: On account of their vocational education and training by the manufacturer of the machine, as well as the job assigned to them, maintenance technicians are in a position to recognize hazards or residual risks that exist during maintenance of the machine, and to take appropriate measures.

Operator: After being trained by the manufacturer or the operating authority, operators are in a position to recognize hazards or residual risks that exist during operation of the machine, in order to guarantee the safe operation of the machine.

Qualified electrician: Maintenance work involving the electrical equipment may only be carried out by qualified electricians (electricians, master electricians, electromechanical technicians, mechatronics technicians, electrical engineering technicians, electrical engineers).

Access to the Machines

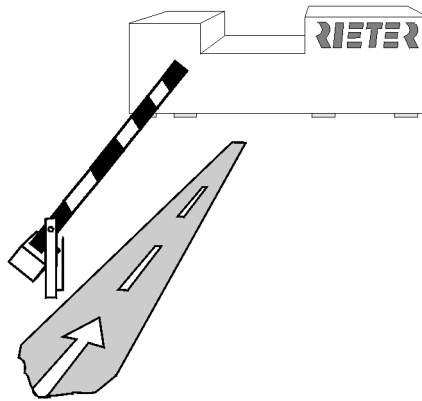


Figure 3: Access to the machines

Only trained and authorized personnel are to have access to the machines.

Personal Protective Equipment

Ear protection:

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ During operation, high levels of airborne noise are emitted at the machine, which can result in hearing damage.
 - 1. Use ear protection in accordance with EN 352.

Safety shoes:

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ At the machine, there is a risk of injury to the feet due to falling objects.
 - 1. Wear safety shoes in accordance with EN ISO 20345 (category S3).

Safety gloves for oils and antifreeze agents:

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ There is a risk of injury to the hands when handling oils and antifreeze agents.
 - 1. Wear nitrile safety gloves in accordance with EN 374.

Cut protection gloves:

- Prerequisites** Make sure that the criteria are obeyed:

- ✓ There is a risk of injury to the hands when handling sharp edged objects.
- 1. Wear cut-resistant gloves with flexible, puncture-proof latex coating in accordance with EN 388:2003.

Thermal-protection gloves:

Prerequisites Make sure that the criteria are obeyed:

- ✓ Surfaces at the machine can become hot.
- 1. Wear thermal-protection gloves in accordance with EN ISO 407.

Safety glasses:

Prerequisites Make sure that the criteria are obeyed:

- ✓ When using compressed air during cleaning tasks, there is a risk of eye injury.
- 1. Wear safety glasses at all times.

Prerequisites Make sure that the criteria are obeyed:

- ✓ When carrying out grinding work for maintenance purposes, there is a risk of eye injury.
- 1. Wear safety glasses at all times.

Clothing

1. Use of appropriate clothing minimizes the risk of accident.
2. Do NOT wear loose clothing (such as scarves, ties, clothing with wide open sleeves, etc.).
3. Cover hair if it is long. Wear a cap or a hairnet at all times.
4. Do NOT wear rings or wrist watches.

Protection against inadvertent start-up

Prerequisites Make sure that the criteria are obeyed:

- ✓ If the machine starts up inadvertently, persons working at the machine can be seriously injured as a result.
- 1. Set the main switch or the safety switch to the "0" position and attach a lock to the switch.
- 2. Remove the key and keep it on your person.

Protective Devices

The safety of persons will be compromised if protective devices do NOT function effectively. Prior to operating the machine, ensure that all protective devices are functioning effectively. Do NOT remove tightly screwed-on covers, viewing windows and pipes unless the machine is in a safe operating state.

Safe operating state:

The main switch or the safety switch is in the "off" position and secured with a lock. There must be no active machine processes.

Work on Electrical Equipment

With the machine at a standstill, set the main switch or the safety switch to the “OFF” position and secure the switch with a lock.

Only electrical technicians are permitted to work at the machine with the main switch in the “ON” position (for measurement and testing purposes).

To guarantee a correct operation sequence, do NOT manually actuate the sensors in normal mode.

External Voltage

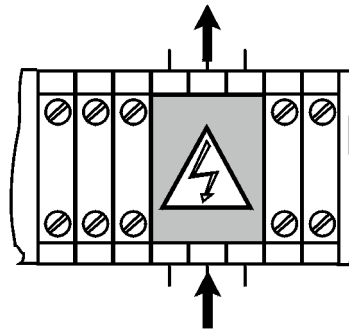


Figure 4: External voltage

Individual circuits may still be live even with the main switch or safety switch in the “OFF” position.

These circuits are marked at the terminals. (see diagram).

Particular care and attention is required in this area.

Supply Line

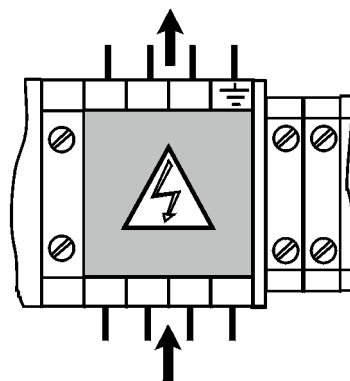


Figure 5: Supply line

The supply line to the main switch remains live, even if the main switch is in the “OFF” position.

The terminals of the supply line are marked. (See diagram).

Particular care and attention is required in this area.

Discharge Duration for Frequency Converters

When carrying out maintenance tasks at frequency converters, comply with the 10-minute wait requirement for discharge.

Safety Circuit

The safety circuit consists of sensors, control elements and actuators. The safety circuit serves to protect man, environment and devices. The elements of the safety circuit are categorized as such in the electrical system documentation.

The following elements are part of the safety circuit:

- EMERGENCY STOP button
- Machine-casing monitors (safety limit switches at doors, hoods, etc.)
- Machine-casing locks (for locking / unlocking of doors, hoods, etc.)
- Safety relay
- Frequency converters with integrated functional safety features
- Controllers with integrated functional safety features

Integrated Functional Safety Features of Frequency Converters

STO (Safe Torque Off) - ensures a no-torque state

SOS (Safe Operating Stop) - ensures a safe operational stop

SBC (Safe Brake Control) - ensures safe control of brake

SS1 (Safe Stop 1) - ensures a controlled stop (category 1)

SS2 (Safe Stop 2) - ensures a controlled stop (category 2)

SSM (Safe Speed Monitor) - ensures safe monitoring of speed

SLS (Safe Limited Speed) - ensures safe limited speeds

SDI (Safe Direction) - ensures movement in a "safe" direction

Safe Torque Off (STO) after EN 60204-1

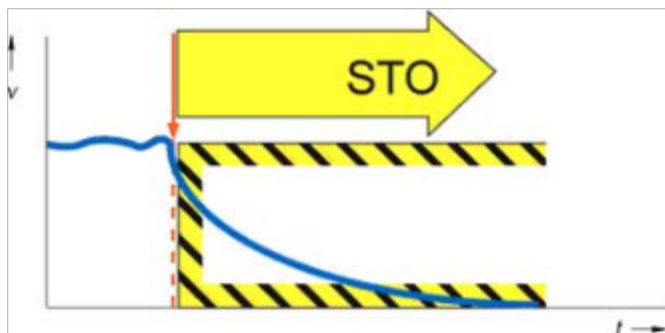


Figure 6: Safe Torque Off

The function STO ensures, that no torque building energy can work on a machine. This prevents an unexpected start-up of the motor. The controller of the operator monitors this condition.

Safety Instructions for Maintenance

Drives with integrated functional safety have a limited service life.

1. Never open elements of the safety circuit.
2. Do NOT modify any elements.

Only ever replace defective safety elements with complete work units! For this commission trained specialists.

Safety elements must only be repaired by the manufacturer or by a certified organization (RIETER Repair Station).

To guarantee the effectiveness of the safety features, these measures must always be implemented.

Required Action Following Replacement of a Safety Element

1. Execute the function test of the safety circuit.
2. Document the replacement and test run events in the log (SAFETY-CIRCUIT LOG) of the electrical documentation for the relevant machine.

Exclusion of Liability

Any unauthorized opening and tampering of safety elements or devices with safety functions contrary to the operating manual instructions (including e.g. the replacement of electronic boards (PCBs) between frequency converters, the removal of such boards, etc.) can lead to physical injury and/or material damage.

Any unauthorized opening and tampering of safety elements or devices will result in the loss of all warranty claims, the waiving of liability for ensuing consequences and the loss of any claims for compensation of damage.

Any costs incurred for the repair or replacement of such a device as a result of unauthorized opening shall be borne in full by the customer.

Interventions on a safety-relevant device, that is not described in this operating manual, and that are executed by an unauthorized person, have as consequence that the safety functions of the device, and thus of the machine, no longer comply with the statutory regulations. Unauthorized opening, changing or repair is prohibited and can be verified. The manufacturers have all the information on the safety elements, e.g. serial numbers of the converters and also of the integrated elements.

Safe Work Environment

Risk of slipping and tripping:

Prerequisites Make sure that the criteria are obeyed:

- ✓ Slippery surfaces and trip hazards can lead to serious accidents.
- 1. Keep aisles, handles, steps, ladders, platforms and railings free of grease, oil and other soiling.
- 2. Do NOT use the machine as a climbing aid or as a means of support.
- 3. Use only the steps and platforms provided.
- 4. Wear anti-slip safety shoes.

Safety Markings

Prerequisites Make sure that the criteria are obeyed:

- ✓ The safety of persons will be compromised if safety markings are not discernible.
- 1. Replace markings that are not discernible.
- 2. Do NOT remove or cover safety markings.

Aids and Tools

Auxiliary aids such as ladders, lifting devices, etc. must be in perfect condition.

Tools and other auxiliary aids must not be deposited on machines that are running.

When using chemicals, such as solvents, comply with the instructions of the manufacturer.

Max. Weight for Manual Handling

A max. weight of 25 kg for regular handling is specified in EN 1005-2.

If the weight of a subassembly exceeds 25 kg, use two persons or lifting equipment for handling purposes.

Work at Buildings and Installations

Bring the machine to a standstill, If, for example, work is to be carried out above the machine, ensure that the machine is stopped beforehand.

Fire Protection

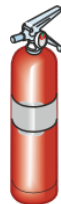


Figure 7: Fire protection

With textile processes, fires can occur.

Fires start through ignition of fibres, fly or fibre dust, when there is smoking, contact of cotton with bearings that are running hot, sparks flying from metallic impurities and electrically generated sparks.

Provide manually-operated extinguishing systems, etc. for fire-fighting purposes.

Instruct personnel in the correct handling of extinguishing systems, use of escape routes, etc.

Determine the extinguishing systems to use in consultation with the local fire-protection authorities.

Disposal

If the machine is to be shut down for good, the legal requirements for re-use and recycling which hold in the respective country are to be complied with.

The operating authority is responsible for the proper disposal of operating media, such as oils, greases and batteries.

2.7.2 Danger Areas

2.7.2.1 UNiclean

There is danger of injury on the components cited. Comply with the safety regulations.

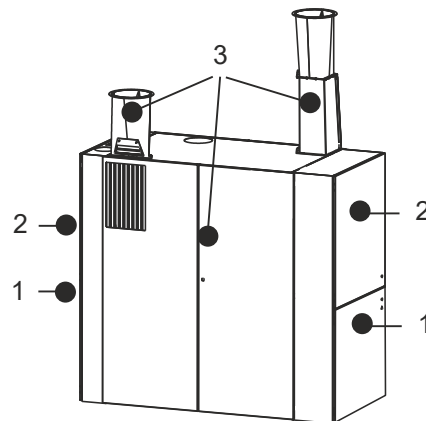


Figure 8: UNiclean

Designation of the machine sides

Designation of the machine sides ► 33

1 Safety label

Safety marking – rear of the machine ▶ 33

Safety marking – front of the machine ▶ 34

2 Secured doors

Safety marking – meaning ▶ 34

3 Safety components

Screwed-on covers, view windows ▶ 34

4 Safety components

Piping ▶ 36

2.7.2.2 Designation of the Machine Sides

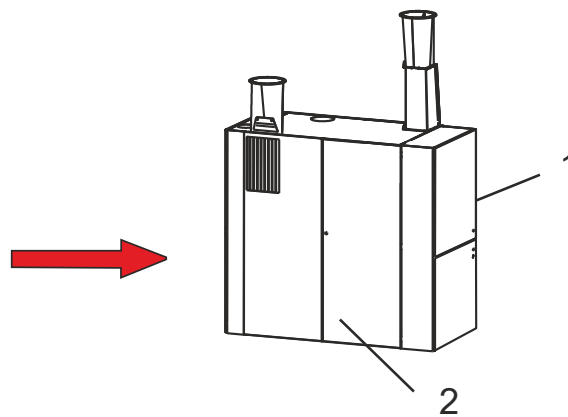


Figure 9: Designation of the machine sides

For machines with a material flow in only one direction, the applicable viewing angle is counter to the material flow, left-hand side of the machine **1**, right-hand side of the machine **2**. See arrow.

2.7.2.3 Safety Marking – Rear of the Machine

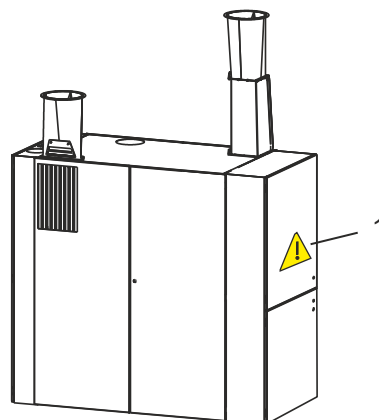


Figure 10: Safety marking – rear of the machine

Safety marking **1** on the rear of the machine.

Warning signs indicate hazard zones.

Doors with safety switches with guard locking are safety devices.

2.7.2.4 Safety Marking – Front of the Machine

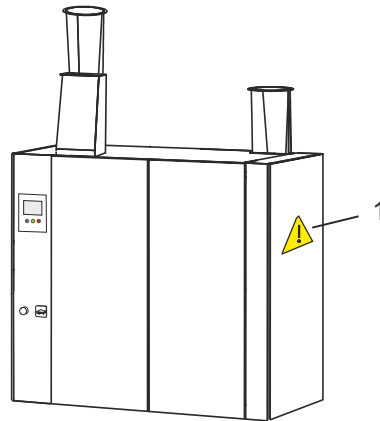


Figure 11: Safety marking – front of the machine

Safety marking **1** on the front of the machine.

Warning signs indicate hazard zones.

Doors with safety switches with guard locking are safety devices.

2.7.2.5 Safety Marking – Meaning



Figure 12: Safety marking – meaning

Safety marking – meaning: High voltage sign

2.7.2.6 Screwed-on Covers, View Windows

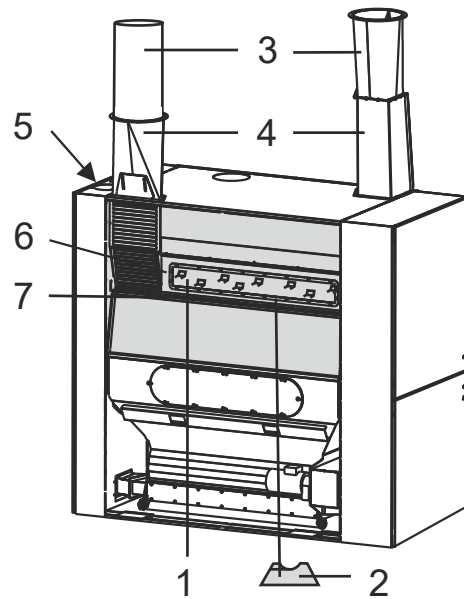


Figure 13: Screwed-on covers, view windows

Screwed-on covers and view windows on the front and rear of the machine are safety devices.

1. Do NOT remove safety devices until:
 - the machine is at a complete standstill.
 - the main switch has been switched off and secured.
1. Do NOT remove the padlock until all the components have been re-mounted.

Windows:

1. The windows **1** are secured with safety nuts **2**. The windows cannot be opened with tools.
2. To replace the windows forcibly remove the nuts. (e.g. using a chisel).
3. Secure new windows with safety nuts.

Safety components on covers:

The safety bracket on the door **5** and the hinge of the relief flap **6** are secured with rivets to prevent unauthorised removal

2.7.2.7 Piping

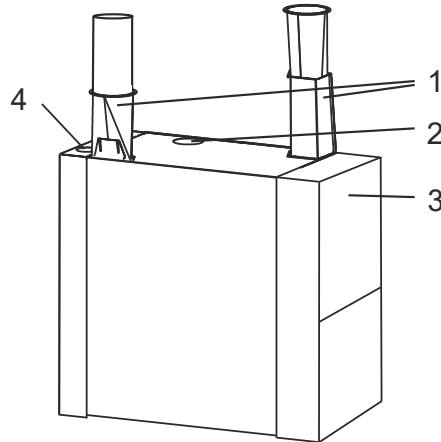


Figure 14: Piping

Piping elements are safety devices.

1. Do NOT remove safety devices until:
 - the machine is at a complete standstill.
 - the main switch has been switched off and secured.
1. Do NOT remove the padlock until all the components have been re-mounted.

Piping:

After installation or after repair of the machine, do not start-up the machine **3** until the piping elements **1**, **2**, **4**, are connected. This prevents access to the rotating spiked roll from above.

If the connecting duct is removed at the top of the machine, one of the yellow covers supplied must be immediately installed at this point.

Operate the machine only with the pipes connected.

2.7.3 Responsibilities and Qualifications

Responsibilities

By clear rules defining who is responsible for what, the customer creates optimum requirements for ensuring safety in the plant.

The areas of responsibility for each authorized person must be officially laid down. This applies in particular to jobs involving setting and servicing mechanical, electric and pneumatic devices.

This guarantees that unauthorized persons do not have access to the machines. Visitors may enter machine rooms only if accompanied by an authorized person.

It must be made clear to visitors that machines are a potential source of danger when running.

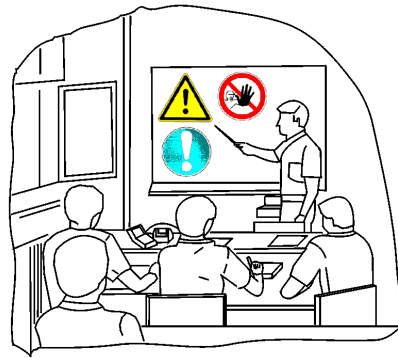


Figure 15: Responsibilities and qualifications

Training

Inadequately trained staff may cause accidents. This may also result in injury to others.

Operating and maintenance staff must be given theoretical and practical training.

This is the general purpose of this part of the instructions. The corresponding operating information in the instructions refers to specific dangers and must always be observed.

If well-trained personnel are in charge of machines, then these will produce a higher yield and a better quality, and there will be fewer faults, higher output and fewer injuries.

2.8 Safety Precautions

2.8.1 Safety Precautions during Adjusting Jobs

When tackling adjusting jobs it is necessary to take suitable safety precautions.

2.9 Regenerating the Replacement Frequency Converter



DANGER

Non-adherence to discharge time!

Risk of death or severe injury.

- ▶ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit.

1. Connect stored replacement frequency converters every six months for at least one hour to the mains without load for regeneration.

⇒ This allows the internal components to regenerate themselves.

Result Thus the replacement device is ready for use.

1. Remove the frequency converter. *Remove frequency converter* ► 160
2. Install the frequency converter. *Install the frequency converter* ► 162

3 Product Information

This chapter contains the information about the basic machine functions and the primary machine assemblies. This chapter contains the information about the location of the machine identification plate and the technical data of the machine.

3.1 Technical Information

This chapter contains the information about the technical information of the standard machine.

3.2 Function Description

The chapters that follow contain the information about the function of the machine and the primary components.

3.3 Control Elements

The information that follows is about the control elements on different machine parts.

3.4 Raw Materials

The machine only uses the textile raw materials that follow:

Cotton	From all sources
Man made fiber	Natural and synthetic polymers
Maximum staple length	60 mm

3.5 Product Information

This chapter gives an introduction to the machine and the technical data.

3.6 Machine Identification

Manufacturer

Rieter Textile Systems

Klosterstrasse 20

CH-8406 Winterthur

Tel. no.: +41 52 208 71 71

Fax: +41 52 208 70 60

3.6.1 CE Nameplate

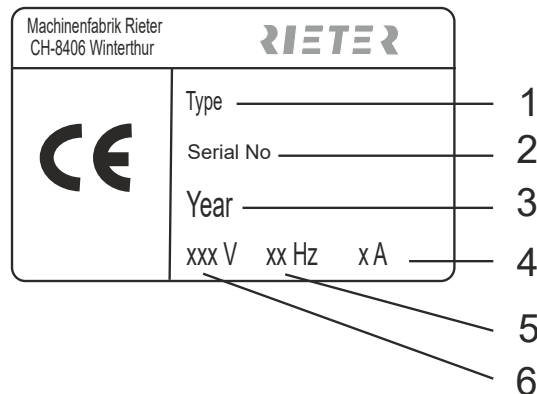


Figure 16: CE nameplate

1	Type	Machine type	2	Serial no.	Serial number
3	Year	Year of manufacture	4	A	Nennstrom
5	Hz	Frequency	6	V	Voltage

The CE nameplate is located in the area of the main switch.

3.6.2 Electrical Ratings Plate

RIETER		
Machine type:	B 1x	1
Order No./Year:	XXXXXXXX/2017	2
Supply voltage:	400 V/50/60 A	3
Rated current:	23.5 A	4
Supply protection:	32 A	5
Control voltage:	24 V DC	6
Diagram No.:	XXXXXXXX	7

Figure 17: Electrical ratings plate

1	Machine type	2	Order no./year
3	Supply voltage	4	Rated current
5	Supply protection	6	Control voltage
7	Diagram no		

The electrical ratings plate are adhesively fastened in the electrical system cabinet. When ordering spare parts, transfer the information stated on the electrical ratings plate to the order form. For messages concerning malfunctions, specify the machine type, the order number and the year.

3.7 Machine Description

3.7.1 UNClean

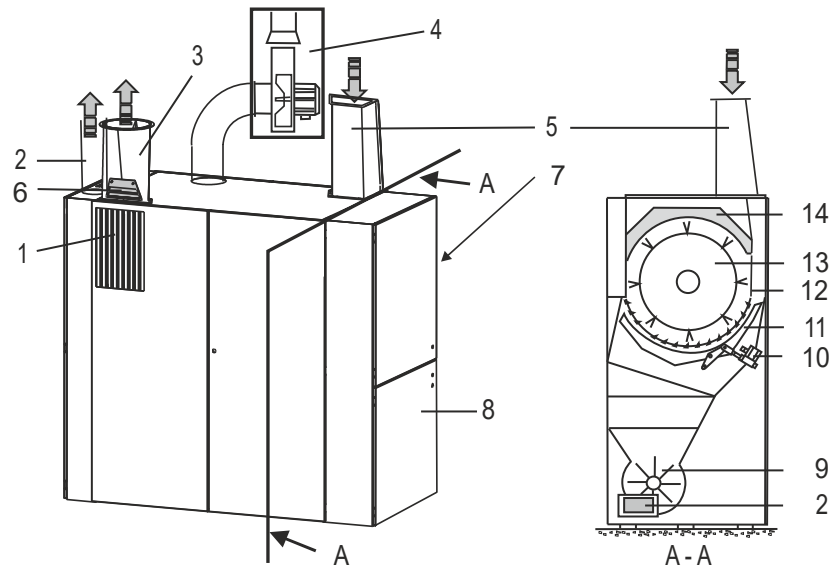


Figure 18: UNClean

1 Opening for additional air	2 Waste transport
3 Material exit point	4 Waste air with open transfer
5 Material entry point	6 Slider for adjusting the additional air
7 Operating unit	8 Control cabinet
9 Discharge roll	10 Electric cylinder
11 Grating	12 Perforated plate
13 Cylinder	14 5 Guide plates

3.8 Technical Definitions and Formulas

Determine Waste Volume

$$A \% = \frac{100 \% \times A_m}{P}$$

Figure 19: Determine waste volume

Calculation of the waste volume: Test period: Normally three times ½ hour. For a provisional waste measurement, carry out at least one or more full UNIfloc passages.

A = Waste in %

AM = Waste volume in kg

P = Production in kg

Production in kg

$$P = \frac{(K_p \text{ kg/h} + A \text{ kg/h}) \times L_z\text{-UNIfloc min}}{\text{Stop/Go} \times 60}$$

Figure 20: Production in kg

P = Production in kg

Kp = Card production in kg/h

A = Waste in kg/h

Lz = Run time of UNIfloc in minutes

Stop/Go = Stop/Go relationship

Stop/Go relationship

$$\text{Stop/go} = \frac{L_z\text{-UNIfloc (Bz)}}{\text{Effz}}$$

Figure 21: Stop/Go relationship

Stop/Go = Stop/Go relationship

Lz-UNIfloc = Run time of UNIfloc

Bz = Operating hourmeter

Effz = Effective run time

3.9 Specifications

3.9.1 Dimensions

3.9.1.1 Space Requirements

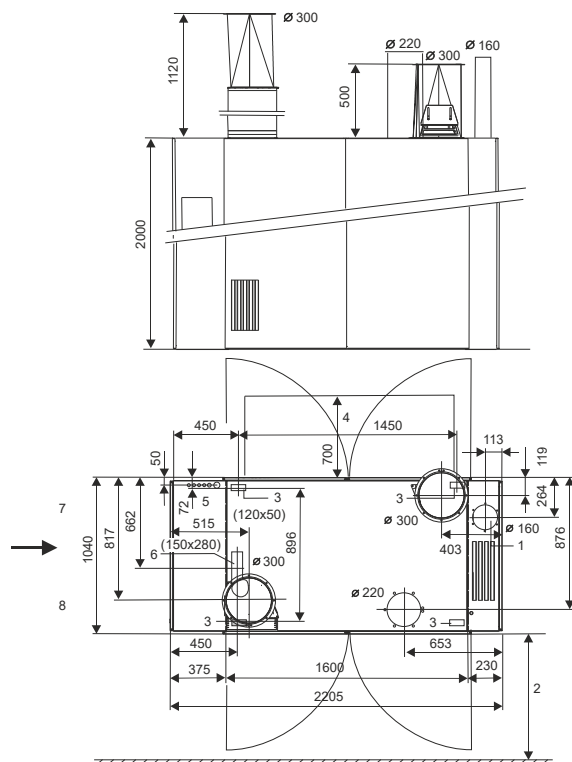


Figure 22: Space requirements

Location number	Designation	Prerequisite	Dimension
1	Waste transport, top	See figure	--
2	Distance from wall	--	min. 1000 mm
3	Foot plates	See figure	--
4	Waste trough extended	--	min. 700 mm
5	Electrical connection, top	See figure	--
6	Electrical connection, bottom	See figure	--
7	Left hand side of machine	See figure	--

Location number	Designation	Prerequisite	Dimension
8	Right hand side of machine	See figure	--

3.9.2 Weights

Designation	Prerequisite	Weights (Kg)
Machine	--	1185
Cylinder	--	165
Waste trough	--	95
Motor	--	85
Hood over cylinder	--	50

3.9.3 Floor Structure



CAUTION

Unstable floor structure!

Risk of damage to machine

- Design a stable floor structure.
- Set up the floor structure according to the load.

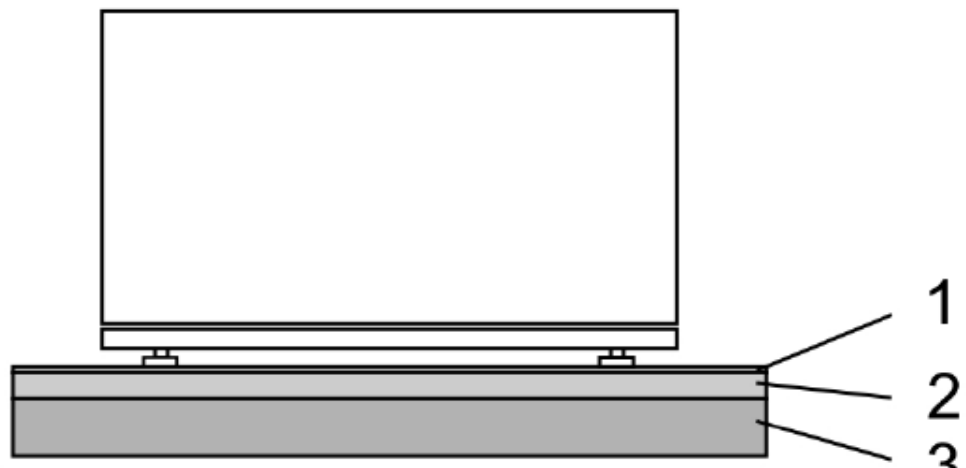


Figure 23: Floor structure

- | | |
|---------------------------------|-----------------------------|
| 1 Flooring | 2 Intermediate layer |
| 3 Floor plate (concrete) | |

1. Check the floor condition requirements. For the weight distribution of the machine, refer to the documentation. Leave the floor construction work to a specialist.

Prerequisites Make sure that the criteria are obeyed:

- ✓ In case of soft floor coverings such as linoleum, xylolite or wood, the concrete base should have the height of the finished floor.
- 1. Replace intermediate layers composed of slag, sand, asphalt, etc. with concrete. Operation of the machine gives rise to vibrations. Vibrations will cause loose intermediate layers to be displaced, and the floor to become unstable as a consequence; this will result in individual machine subassemblies lowering.

3.9.4 Machinery requirements

3.9.4.1 Air Conditions

Values

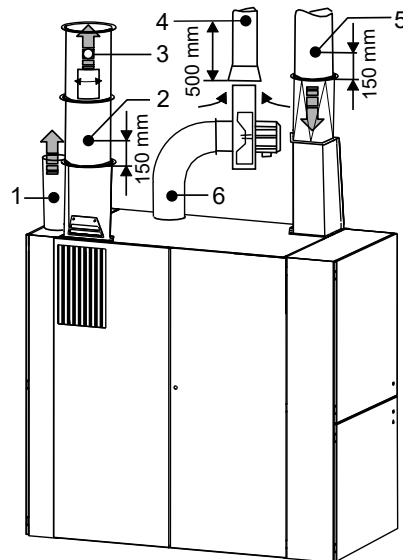


Figure 24: Air conditions

Waste transport 1	Air flow rate	0.55 m³/s
Waste transport 1	Static vacuum	- 1000 Pa
Material outlet 2	Air flow rate	0.60...0.80 m³/s
Material outlet 2	Static vacuum	- 50 to - 200 Pa
Material outlet 3	Air flow rate	0.80...1.20 m³/s
Material outlet 3	Static vacuum	- 50 to - 200 Pa
Open transfer 4	Air flow rate	0.50...0.60 m³/s
Open transfer 4	Static vacuum	- 50 to - 150 Pa
Flow rate at material entry point 5	Air flow rate	0.60 - 0.80 m³/s

Flow rate at material entry point 5	+ 50 to + 150 Pa
Static excess pressure	
Dedusting 6 Air flow rate	0.50 - 0.60 m³/s
Dedusting 6 Static vacuum	- 400 to - 700 Pa

3.9.4.2 Electrical Data

Mains Connection

If the mains voltage is not within the specified range, a transformer must be used to ensure stable conditions.	3 x 400 V +/- 10%
---	-------------------

Installed Electrical Power

Machine-specific data	See electric circuit diagram
-----------------------	------------------------------

3.9.5 Emissions

3.9.5.1 Sound Emission Declaration

Declared A-weighted Sound Power Level (Reference Pressure, 1 pW) LWAd

Operating status without material: Normal production	87 + 3 dB
---	-----------

Measurement standard: Condition: Without material, without external fans, cylinder speed 960 rpm.

Declared Sound Power Level at the Workplace (Reference Pressure 20 µPa) LpAd

Operating conditions with material: Normal production	70 + 3 dB
--	-----------

Measurement standard: Condition: Without material, central suction, cylinder speed 960 rpm.

3.9.6 Performance Characteristics

Raw materials

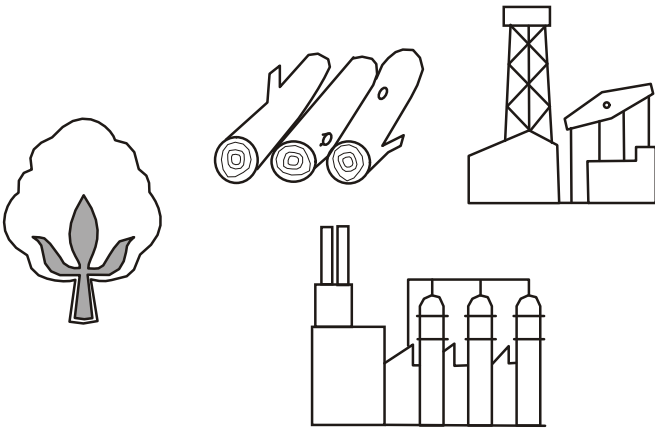


Figure 25: Raw materials

Raw materials	This machine has been built exclusively for the processing of textile raw materials. Non-textile raw materials must not be processed on the UNIClean.
Cotton	From all sources

Production

B 17	1200 kg
------	---------

Table 1: Production

- Equipment (Alternative):

3.10 Structure

3.10.1 Structure of the Controller

The controller is structured as follows:

Main menu **A**, submenu **B**

1	2	3	4	— A
1.1...1.x	2.1... 2.x	3.1 ... 3.x	4.1 ... 4.x	— B

Figure 26: Structure of the controller

1 Information:

- 1.1 General information, machine information, frequency, frequency converter)
- 1.2 Information production (use effects, actual values, drives, IO overview)
- 1.3 Protocols/statistics (alarms/warnings, event history, value changes logbook, event statistics)

2. Production settings:

- 2.1 Production

3. General settings:

- 3.1 General settings (date/time, language, machine set-up values, screen properties)
- 3.2 Configuration (network configuration, machine configuration)

4. Service:

- 4.1 Maintenance (data export, data import, restart)
- 4.2 Tests (input test, output test, spiked roll, discharge roll, grating, door guard locking, continuous test)
- 4.3 Diagnostics (B+R system diagnostics)

3.11 UNclean**3.11.1 Description**

Purpose: The UNclean is a cleaning and dedusting machine for all types of cotton. Impurities are separated gently and effectively. The raw material is not nipped.

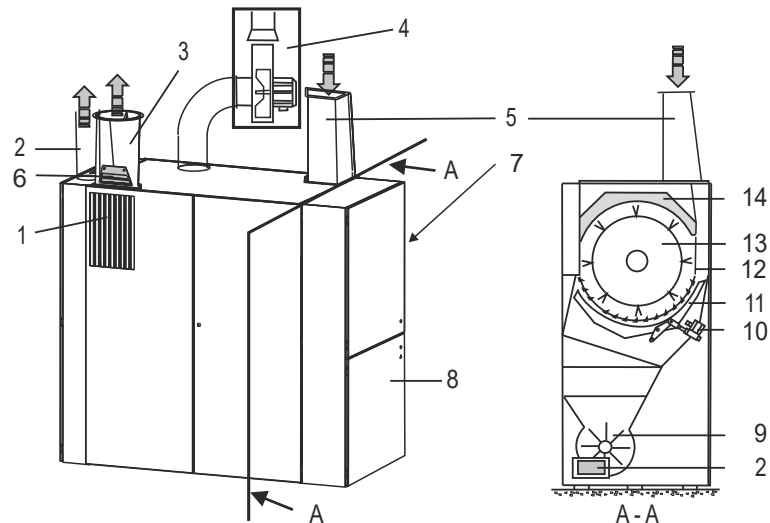


Figure 27: Description

Method of Operation

- The material enters through the pipe connection **5**.
- The cleaned material is suctioned off via connection **3** and transported to the next machine.

- Part of the incoming transport air is drawn off via the perforated plate **12** by the fan **4**.
- Effective dedusting of the raw material is thus achieved.
- The open transfer ensures a constant vacuum.
- The remaining transport air is drawn off via the connection **3** with the material.

The opening **1** for the auxiliary air ensures a reliable further transport of the tufts.

The volume of auxiliary air is varied with the slide valves **6**.

Purpose: Cleaning

Method of Operation

- The tufts are picked up by the special tines of the cylinder **13**.
- The cleaning intensity (speed of the cylinder) can be infinitely varied and adapted to the raw material while the machine is running.
- The guide plates **14** convey the tufts several times over the grating **11** in a spiral.
- The waste volume (grating angle) can be infinitely **10** varied via electric cylinder while the machine is running.
- The waste is removed periodically via the discharge roll **9** and pipework **2**.
- The interval is determined by the pneumatic waste transport system.
- The discharge roll **9** separates the waste chamber from the transport air for the waste in the pipeline **2**. As a result, the waste separation at the grate is not affected.
- The combination of cleaning intensity and waste volume ensures good cleaning with few good fibres in the waste.

3.12 Differential Pressure Switch

3.12.1 Description

Purpose: Control of stripper roller for waste disposal

Method of Operation

- If the flap **1** is opened by the waste transport controller, a vacuum is created in duct **2**.
- The stripper roller motor is started by the differential pressure switch **3**.
- The stripper roller motor runs until flap **1** closes again. There is no more vacuum.
- The stripper roller motor is stopped by the differential pressure switch **3**.

3.13 Control Technique

3.13.1 Basic Module of the Control System

3.13.1.1 Cold Start with Reset Button on CPU/Battery

Controller B+R ▶ 60

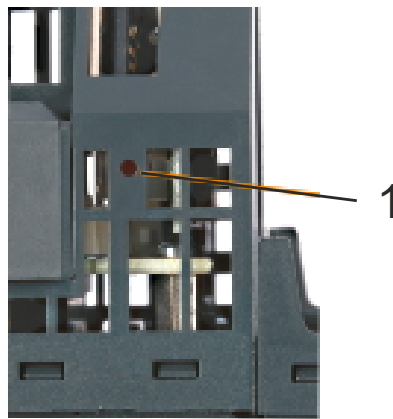


Figure 28: Cold start with reset button on CPU/battery

The reset button is located below the USB interface on the housing base.

1. Trigger a hardware reset with the reset button.
2. To do this, press the reset button **1** with a sharp object, e.g. with a paper clip.
⇒ The user programs are stopped, the outputs are set to zero.
3. A cold start is performed. The controller boots in the default setting in service mode. Adjust the boot procedure in Automation Studio.

3.13.1.2 Ethernet Interface 3IF of the Control System

3.13.1.2.1 Setting the IP Address

Controller B+R ▶ 60

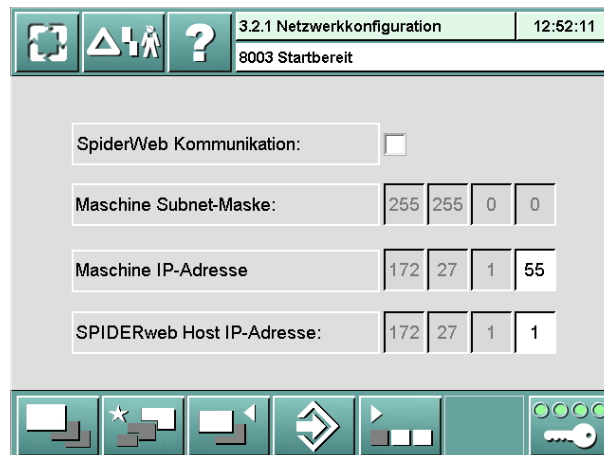


Figure 29: Setting the IP address

Setting the IP Address

1. On the operating side 3.2.1, set the network configuration under Machines –IP address. In this process ensure that only one IP address exists per network.
2. If a UNIcontrol network plan is present, then set the IP address for the network.

3.13.1.3 Change the Battery

Controller B+R ▶ 60

Change the Battery

1. Change the battery

Change battery of control system ▶ 158

3.13.2 Frequency Converter

3.13.2.1 Identifying the Frequency Converter

Replacing the Frequency Converter ▶ 159

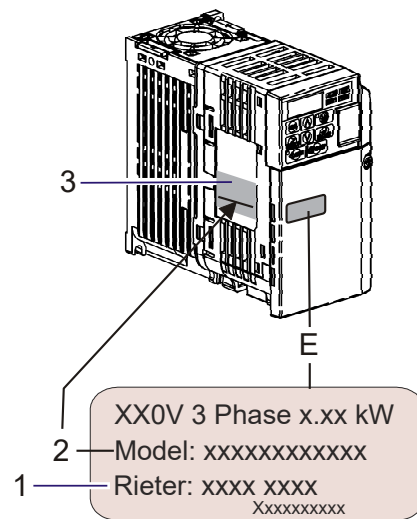


Figure 30: Identifying the frequency converter

The RIETER part number **1** on the label **E** must agree with the part number of the device in the electrical documentation. The model designation **2** must agree with the designation on the manufacturer's label **3** found on the frequency converter.

4 Packaging and Transportation

This chapter contains the information about the packaging, packaging accessories, and the instructions on the safe machine transport.

4.1 Transportation of the Machine to the Installation Site

The customer is generally responsible for the unloading and the transportation to the installation site. Under normal circumstances, the unloading and transporting of a component to the installation site is not carried out by installation personnel. Nevertheless, occasions may arise where guidance is needed. This should only be provided to a limited extent however, so as to ensure that our installation personnel cannot be held responsible for any damage that may arise.

4.2 UNclean

4.2.1 Transportation

Transporting and installing the UNclean ▶ 58

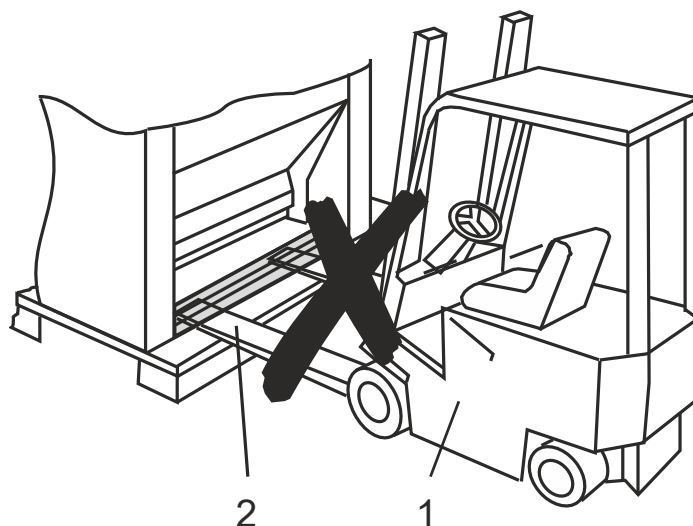


Figure 31: Transportation

1. Position the UNclean with its wooden substructure at its intended location.
2. Do not position the forks of the fork-lift **1** beneath the cross-members **2** and try to lift the machine. The cross-members could be damaged.

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5 Installation

This chapter contains the information about the site preparation for the machine and the installation of the machine. Only Rieter technicians or Rieter-approved technicians are permitted to install the machine.

5.1 Installation Personnel

Only Rieter personnel or Rieter-approved personnel are permitted to install the machine.

5.2 Installing the Machine

5.3 Prerequisites

This section contains the information about the prerequisites for the machine installation.

- The customer gives an introduction to the danger zones of the installation site. All user groups must know the general safety regulations.
- The customer takes the measures for the primary organizational safety.
- The customer gives the information about the construction-related measures to make sure that the work on the site is fully safe.
- The customer must install the necessary railings.
- The training for the personnel is given before the installation.
- A continuous change of the personnel during the installation is not permitted.
- The installation personnel must have access to the operation manuals.

5.4 Unpacking

1. Open the material boxes.
2. Examine the transport damage.
3. If machine damage is found, tell the customer to claim to insurance office.

Result The boxes are unpacked.

5.5 Cleaning the Installation Location

Prerequisites Make sure that the criteria are obeyed:

- ✓ 1 piece of brush or 1 set of vacuum cleaner is to be used.
- 1. Remove the crates and pallets that are with the machine parts.
- 2. Clean the floor with the brush or the vacuum cleaner.
 - ⇒ The floor is as dust-free as possible.

Result The installation location is cleaned.

5.6 Explanation on this Section of the Operating

What is Part 3 for?

Part 3 contains checklists and tables relevant to potential tasks, such as settings, optimisation, etc.

These checklists provide an overview of all tasks that have to be carried out, such as changing to a different type of material, for instance.

What information is contained in Part 3?

The checklists contain all the work instructions on various work situations, with reference to the relevant tables and detailed work descriptions.

When do you need to consult Part 3?

If the machine or plant has to be set up.

If there is a material change.

If the quality or productivity is to be optimised.

If work needs to be carried out on certain components.

5.7 Gearing Layout

5.7.1 Cylinder

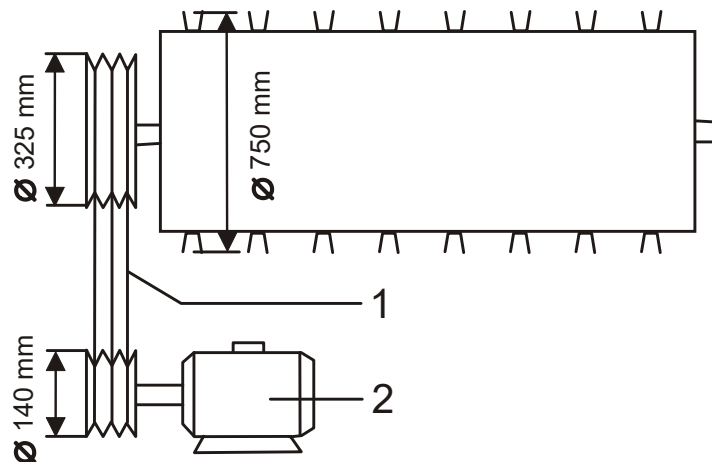


Figure 32: Cylinder

1 V-belt, profile SPZ, length 3170 mm. The V-belts are the same length.

2 Motor with motor pulley 140 mm. The motor is controlled by a frequency converter.

Cylinder speed

Cylinder speed

Cylinder speed	480 – 960 min ⁻¹
----------------	-----------------------------

5.7.2 Stripper Roll

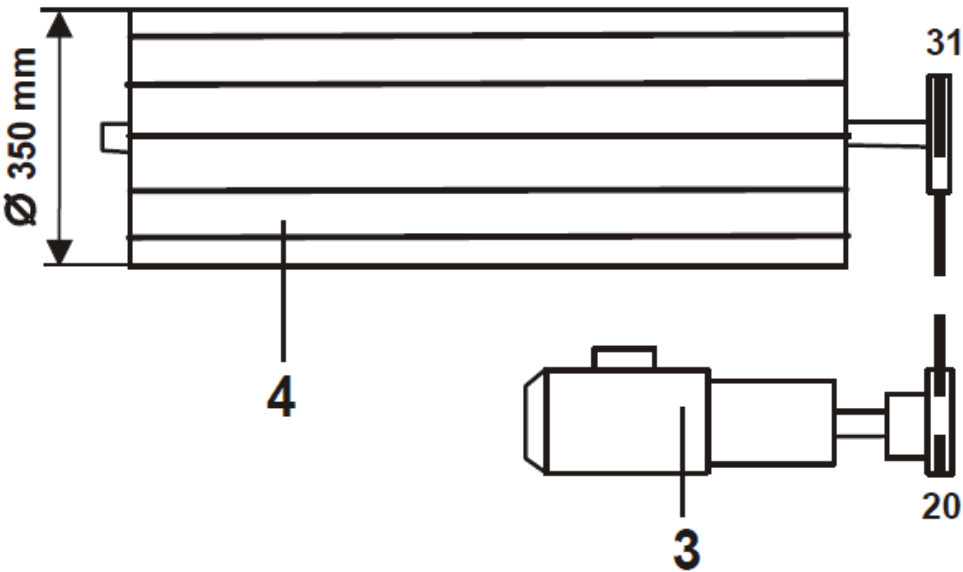


Figure 33: Stripper roll

3 Gear motor

Stripper roll

Stripper roll

50 Hz	24.8 rpm
60 Hz	29.7 rpm

5.7.3 Grid

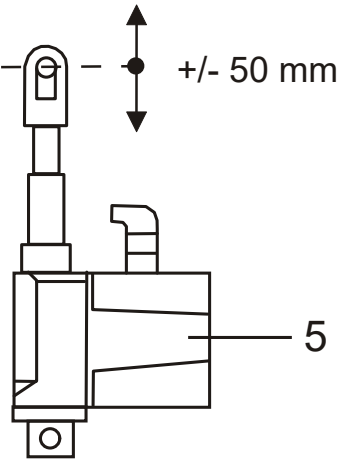


Figure 34: Grid

5 Grating adjustment

Electric cylinder

Electric cylinder

Thrust	2000 N
Stroke	100 mm
Lifting speed	5.6 mm/s

5.8 Machine Set up; Optimise Settings**5.8.1 Transporting and installing the UNclean****5.8.1.1 Assembly Instructions**

1. Select set-up location.

Transportation ▶ 53

Installation ▶ 61

5.8.1.2 Air Properties

1. Set the air conditions for material transport.

Setting the suction volumes for material transport ▶ 79

1. Set the air conditions for waste and exhaust air.

Set the Suction Values for Waste and Exhaust Air ▶ 80

5.8.2 Optimise Waste Volume**5.8.2.1 Grating**

1. Adjust the bars to the material.

Production settings ▶ 77

1. Replace worn dust bars.

Remove grating bars ▶ 151

Installing the grating bars ▶ 152

1. Replace defective electric cylinder used to adjust the bars, and set the new cylinder.

Electric cylinder for the grating setting ▶ 152

5.8.3 Cylinder**5.8.3.1 Double Tines**

Replace damaged tines.

Remove the bearing journals ▶ 155

Install the double tines ▶ 156

5.8.3.2 Speed is Incorrect

1. Check and, if necessary, adjust the proximity switch.

Proximity switch ▶ 157

5.8.3.3 Bearing Journal

Replace the bearing journals of the cylinder.

Remove the bearing journals ▶ 155

Install the bearing journals ▶ 156

5.8.4 Measurements

5.8.4.1 Waste Measurement

Waste measurement with filter box

Draw off waste with separate filter box ▶ 111

Manual waste measurement

Determining the waste volume ▶ 112

5.8.4.2 Dust Volume

Determining the waste volume

Determine dust volume ▶ 113

5.8.5 Waste Extraction

5.8.5.1 Waste Extraction (Control with Differential Pressure Switch)

Adjust the differential proximity switch.

Waste extraction control through differential pressure switches ▶ 114

5.8.5.2 Waste Extraction (Controlled without Differential Pressure Switches)

Set the interval between discharge roll start processes.

Waste extraction, control without differential pressure switches ▶ 115

5.8.6 Replacing the frequency converter

5.8.6.1 Loading

The device must be equipped with the necessary components.

Identifying the frequency converter ▶ 51

Loading the frequency converter ▶ 163

Cooling-system adjustment ▶ 165

5.8.6.2 Configuration

Configure the components.

Configuring the frequency converter ▶ 164

Setting the T1000V frequency converter ▶ 165

5.8.6.3 Emergency Mode

It is possible to switch to emergency mode until a new frequency converter is available.

Normal operation with frequency converter ▶ 167

Setting emergency operation without frequency converter ▶ 168

Setting emergency operation without frequency converter on the operating page ▶ 169

5.8.7 B&R Control Unit

5.8.8 Controller B+R

5.8.8.1 Setting Ethernet Address

Setting the IP address

Setting the IP Address

5.8.8.2 Change the Battery

Change the battery

Change the Battery ▶ 51

5.8.8.3 Perform a Cold Start

Perform a cold start

Cold Start with Reset Button on CPU/Battery ▶ 50

5.9 Safety Precautions

5.9.1 Safety Precautions during Installation

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

5.10 UNclean

5.10.1 Installation

Transporting and installing the UNclean ▶ 58

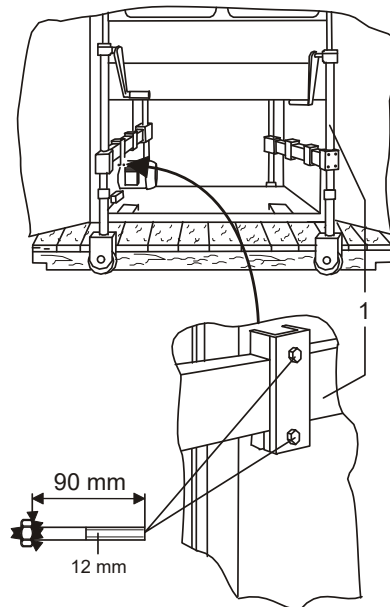


Figure 35: Installation

The UNclean is standing on its wooden substructure at the intended location.

Opening the doors in de-energised status (door lock)

Opening the Doors in De-energised Status (Door Lock) ▶ 83

1. As the power supply is not yet connected, open the doors with the triangular key.
2. Pull out the waste trough.

Pull out the Waste Trough / Open the Flap ▶ 82

1. Install the castor jacks **1** as illustrated in the figure.

The castor jacks are used only for removing the wooden base and for exact placement. Do not move the machine long distances on the castor jacks. If the machine must be moved slightly, then lower the machine.

Level the UNIClean in longitudinal and lateral direction with the jackscrews.

5.11 Torque Standard

Screw Dimension	Strength Class	Torque (Nm)	Clamping Strength (kN)
M4	8.8	3.1	3.9
	10.9	4.5	5.7
	12.9	5.3	6.7
M5	8.8	6.1	6.4
	10.9	8.9	9.3
	12.9	10.4	10.9
M6	8.8	10.4	9.0
	10.9	15.5	13.2
	12.9	18.0	15.4
M8	8.8	25.0	16.5
	10.9	37.0	24.2
	12.9	43.0	28.5
M10	8.8	51.0	26.0
	10.9	75.0	38.5
	12.9	87.0	45.0
M12	8.8	87.0	38.5
	10.9	130.0	56.0
	12.9	150.0	66.0
M16	8.8	215.0	72.0
	10.9	310.0	106.0
	12.9	370.0	124.0
M20	8.8	430.0	117.0
	10.9	620.0	166.0
	12.9	720.0	194.0
M24	8.8	740.0	168.0
	10.9	1080.0	239.0
	12.9	1240.0	280.0

6 Display Elements and Operating Elements

This chapter contains the information about the elements that are used to operate the machine.

6.1 Operating Elements

This chapter contains the information about the operating elements of the machine.

6.2 Display Elements

This chapter contains the information about the display elements of the machine.

6.3 Overview of Controls and Display Elements

6.3.1 Operating and Display Elements

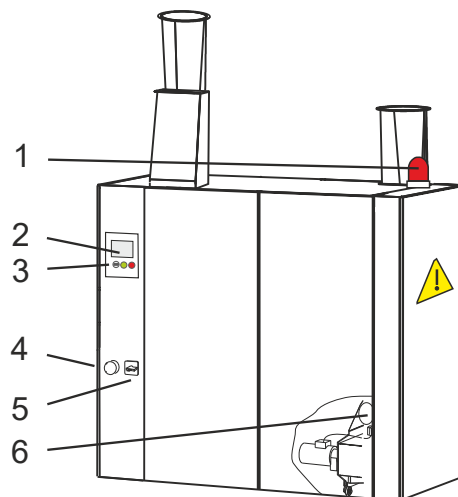


Figure 36: Operating and display elements

1 Lamp ▶ 65

2 Panel ▶ 66

3 Buttons on the panel ▶ 66

4 EMERGENCY STOP switch ▶ 67

- 5 – Main switch ▶ 67
- Safety switch with guard locking ▶ 68

- 6 – Discharge roller key ▶ 68
- Operating page of the controller, operating elements, header ▶ 69
- Operating page of the controller, operating elements, inner area ▶ 69
- Operating page of the controller, operating elements, footer ▶ 70
- Keyboard ▶ 74
- UNIconrol controller ▶ 71
- STATUS LEDs ▶ 71
- T1000V frequency converter ▶ 72

See also

- 📖 Main Switch [▶ 67]
- 📖 Safety Switch with Guard Locking [▶ 68]
- 📖 Discharge Roll Key [▶ 68]
- 📖 UNIconrol Controller [▶ 71]
- 📖 STATUS LEDs [▶ 71]
- 📖 T1000V Frequency Converter [▶ 72]
- 📖 Keyboard [▶ 74]

6.4 Operating and Display Elements

6.4.1 Lamp

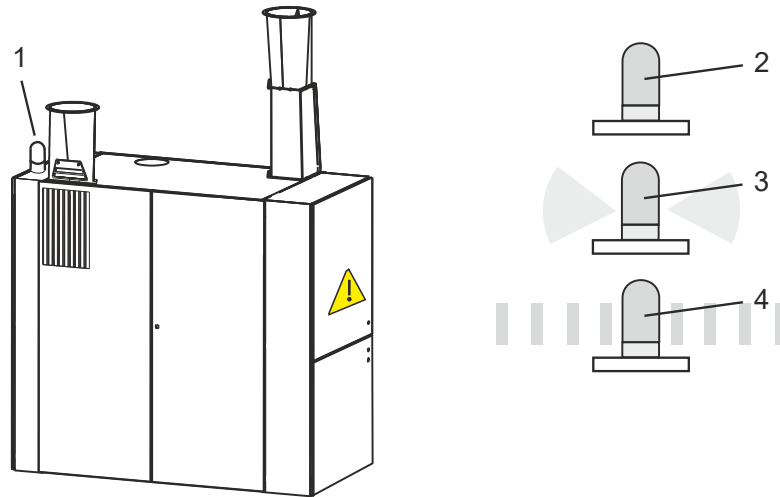


Figure 37: Lamp

Type of element: Lamp **1** on the machine

Display state

- **2** Light does not light up:

No mains voltage.

The main switch is in off position.

The machine is producing.

- **3** Light lights up:

The main switch is on.

The machine is ready to start.

A fault has occurred.

- **4** Lamp flashes:

A warning is present.

The machine continues to produce.

6.4.2 Panel

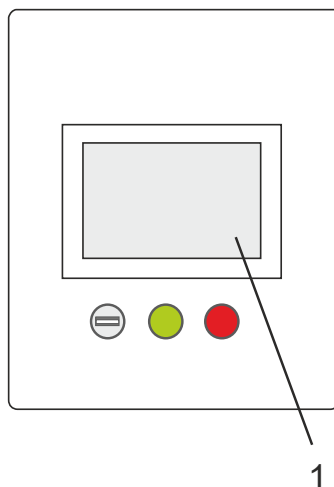


Figure 38: Panel

Type of element: Operation of the machine via panel

6.4.3 Buttons on the Panel

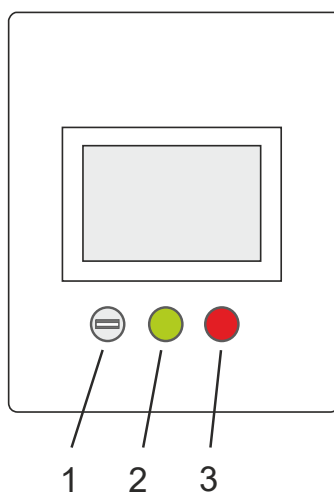


Figure 39: Buttons on the panel

Type of element: Operation of the machine via keys

USB connection **1**, green key **2** for starting the machine, red key **3** for stopping the machine.

Display state

- Via the USB connection, data can be transferred to the controller or data can be stored by the controller.

- The machine is started via the green START key. Pressing the START key causes the production mode to be activated. If the machine cannot be started, the cause is indicated as fault message. In service mode, pressing the START key causes the currently selected function to start.
- The machine can be stopped with the red STOP key. Pressing the STOP key causes the production mode or the currently-active sequence of movements to stop.

6.4.4 EMERGENCY STOP Switch

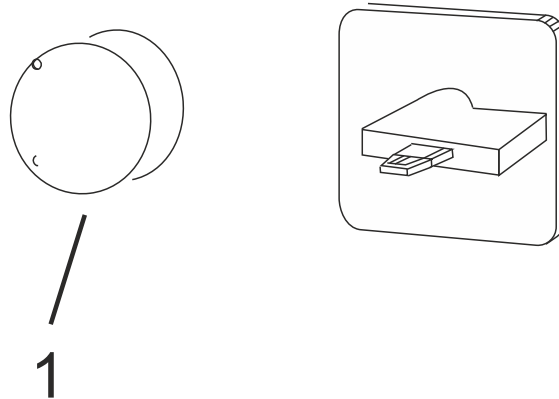


Figure 40: Emergency stop switch

Type of element: EMERGENCY STOP switch

With the EMERGENCY STOP switch **1** the machine is stopped in an emergency. The drives will be stopped. The machine cannot be started, as long as the EMERGENCY STOP switch is activated.

6.4.5 Main Switch

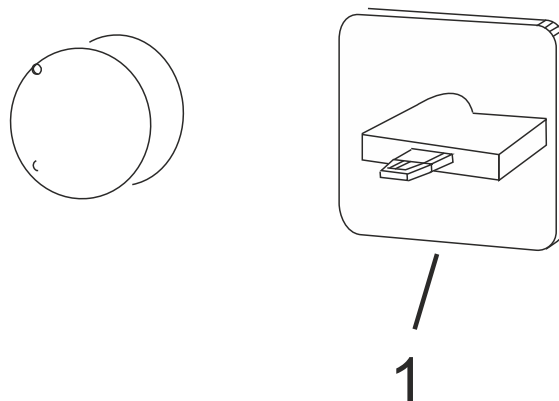


Figure 41: Main switch

Type of element: Main switch

With the main switch **1** the operating voltage is switched on or off. Switched off in position "0": The machine has no operating voltage. The machine cannot be started. Switched on in position "1": The machine is ready to start. Turn off the main switch and secure it with a padlock when performing the following tasks: Maintenance, repair.

6.4.6 Safety Switch with Guard Locking

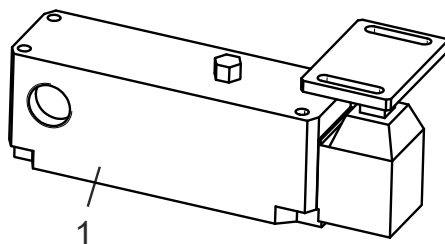


Figure 42: Safety switch with guard locking

Type of element: The safety switch with guard locking **1** prevents the doors on the machine from being opened when the machine is running. The door can only be opened when the drives are at a standstill.

6.4.7 Discharge Roll Key

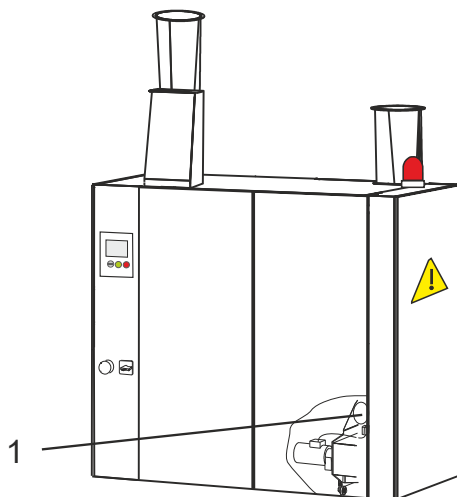


Figure 43: Discharge roll key

Type of element: Discharge roller key

Select the discharge roller **1**. The discharge roller rotates as long as the key remains pressed. This function is used for determining the waste.

6.4.8 Operating Page of the Controller, Operating Elements, Header

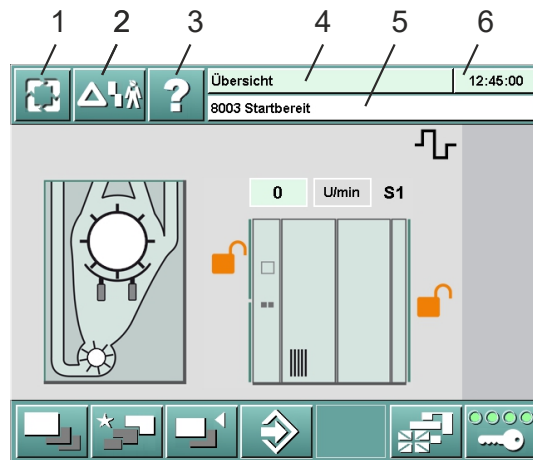


Figure 44: Operating elements header

Type of element: Operating page of the controller, operating elements, header and inner area.

On the operating page of the controller the following settings can be made:

Display state

- Machine mode Automatic/service **1**.
- Navigation to alarms/warnings **2**.
- Screenshot, context help, help **3**.
- Current page **4**.
- Current machine status **5**.
- Time on the controller **6**.

6.4.9 Operating Page of the Controller, Operating Elements, Inner Area

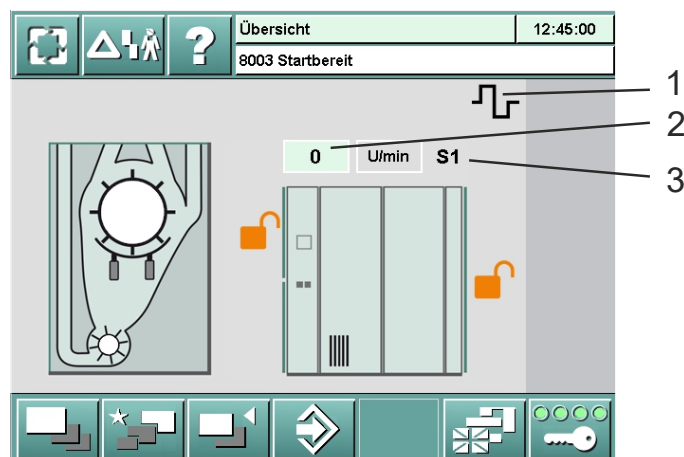


Figure 45: Operating elements inner area

Type of element: Operating page of the controller, operating elements, inner area

On the operating page of the controller the following settings can be made, for example:

Display state

- Communication to UNIconrol **1**.
- Speed, spiked roller **2**.
- Assortment **3**.

6.4.10 Operating Page of the Controller, Operating Elements, Footer

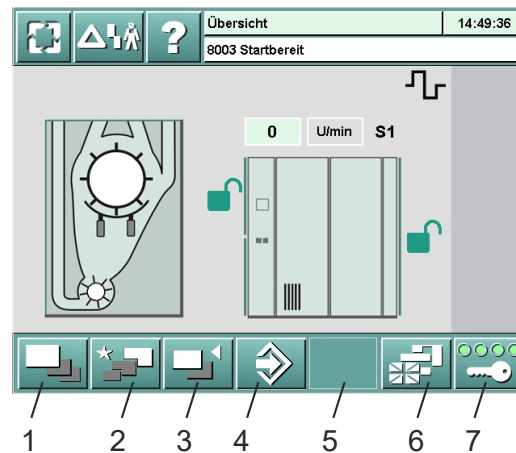


Figure 46: Operating elements footer

Type of element: Operating page of the controller, operating elements, footer

On the operating page of the controller the following settings can be made:

Display state

- Overview screen **1**
- Login-dependent favourites **2**
- Navigation to the first page **3**
- Navigation to the menu **4**
- Context-dependent, e.g. navigation to the next screen **5**
- Context-dependent, e.g. change language **6**
- Navigation to the login **7**

6.4.11 UNIcontrol Controller

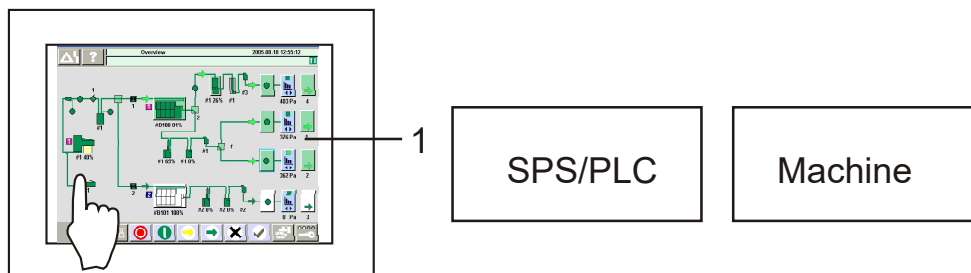


Figure 47: UNIcontrol control system

Type of element: UNIcontrol controller for blow-room machines **1**.

See "UNIcontrol" operating manual.

6.4.12 STATUS LEDs

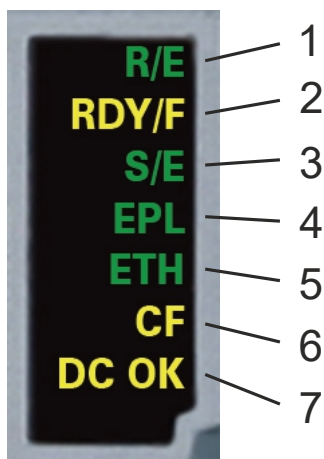


Figure 48: STATUS LEDs

Type of element: STATUS LEDs

Display elements on the control unit

Display state

- **1** R / E

Colour: Green, status: ON, application running.

Colour: Red, status ON, SERVICE mode.

- **2** RDY / F

Colour: Yellow, status: ON, service or BOOT mode.

Colour: Status, status: ON, excess temperature.

- **3** S / E

Colour: Green/red, status: Error.

– **4** EPL

Colour: Green, status: ON, the link to the POWERLINK remote station is established.

Colour: Green, status: Flashes, the the link to the POWERLINK remote station is established. The LED flashes if an Ethernet activity is present on the bus.

– **5** ETH

Colour: Green, status: ON, the link to the Ethernet remote station is established.

Colour: Green, status: The link to the Ethernet remote station is established. The LED flashes if an Ethernet activity is present on the bus.

– **6** CF

Colour: Green, status: ON CompactFlash inserted and detected.

Colour: Yellow, status: ON, write and read access to CompactFlash.

– **7** DC OK

Colour: Yellow, status: ON, CPU power supply OK.

Colour: Status, status: ON battery buffer empty.

6.4.13 T1000V Frequency Converter

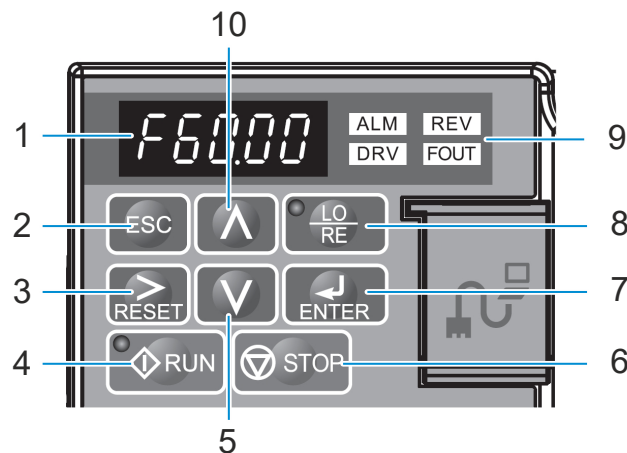


Figure 49: T1000V frequency converter

Type of element: T1000V frequency converter

T1000V frequency converter

Display state

– **1**

Used for data display

Indicates monitoring data, parameter numbers and settings.

– **2**

ESC key

Returns to the previous menu.

– **3**

RESET key

Moves the indicator to the right, acknowledges faults after they have been rectified.

– **4**

RUN key

Starts the frequency converter operation, if the frequency converter is controlled via the operating unit (local mode).

RUN LED

Is illuminated when the motor is turning.

Flashes, at a speed decrease and when the reference value for the frequency is "0".

Flashes quickly when the drive is activated.

– **5**

Down arrow

Used to move partial image down. Move cursor down. Reduce values.

– **6**

STOP key

Used to stop frequency converter operation.

– **7**

ENTER key

Confirmation and storage of set values or parameters.

– **8**

LOCAL/REMOTE key

Used to switch between the control unit involving the operating unit (LOCAL) and the control terminals (REMOTE).

LO-RE LED

Is illuminated if the frequency converter is controlled via the digital operating unit (local mode).

– **9**

ALM LED

Flashes, when the drive has "Alarm" status.

Flashes, when the drive has "Error" status.

REV LED

Flashes, when the drive is rotating in reverse.

Is not illuminated if the drive is rotating forward.

DRV LED

Is illuminated, when the drive is ready.

Is not illuminated, when the drive is in one of the following modes: "Verify", "Setup", "Parameter Setting", "Auto".

FOUT LED

Is illuminated when the output frequency is displayed.

Is not illuminated when something other than the output frequency is being displayed.

– 10

Arrow up key

Used to move partial image up. Move cursor up. Increases values.

6.4.14 Keyboard



Figure 50: Keyboard

Type of element: Keyboard

1. The keyboard can be set to numbers or letters.
2. Enter the numbers on the keyboard.
3. Confirm the numbers.
4. Enter the letters or the text on the keyboard.
5. Confirm the letters or the text on the keyboard.

6.5 Structure

6.5.1 Main menu – Information

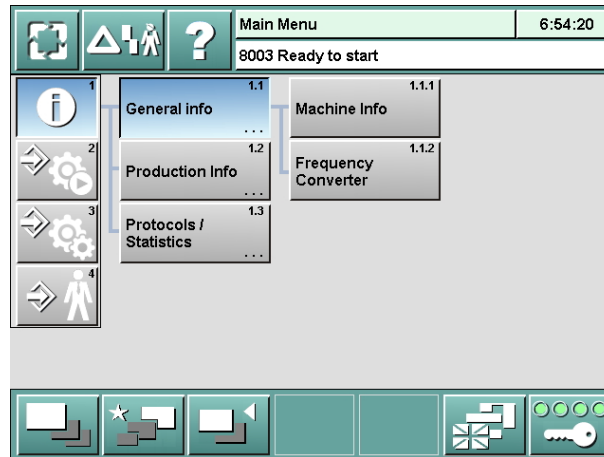


Figure 51: Main menu - information

In the main menu, Information, information concerning the machine status is found in the operating pages.

6.5.2 Main Menu - Production Settings

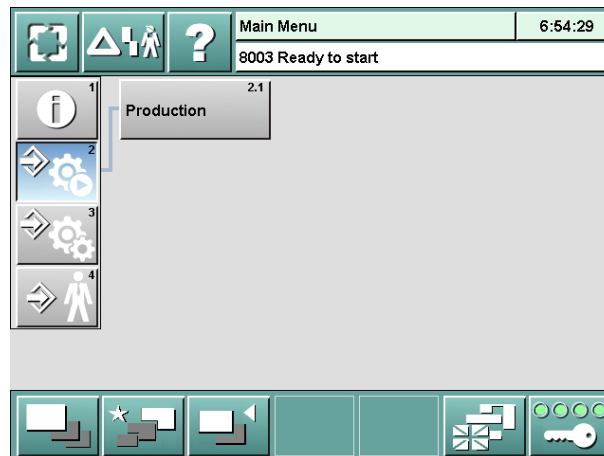


Figure 52: Main menu - production settings

In the main menu, Production settings, production data can be adjusted.

6.5.3 Main Menu - Machine Settings

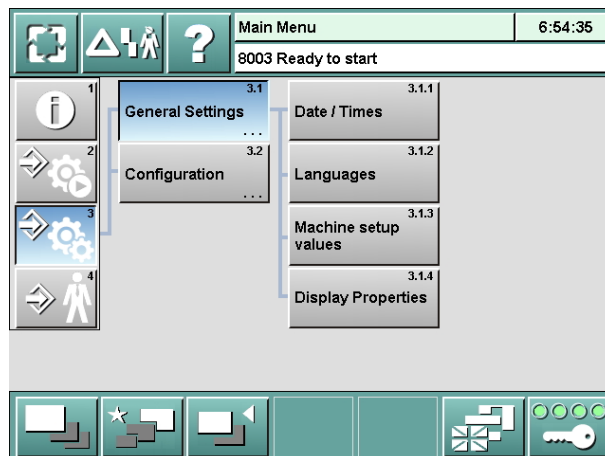


Figure 53: Main menu - machine settings

In the main menu, Machine settings, data for settings and configuration of the machine is located in the operating pages.

6.5.4 Main Menu Service

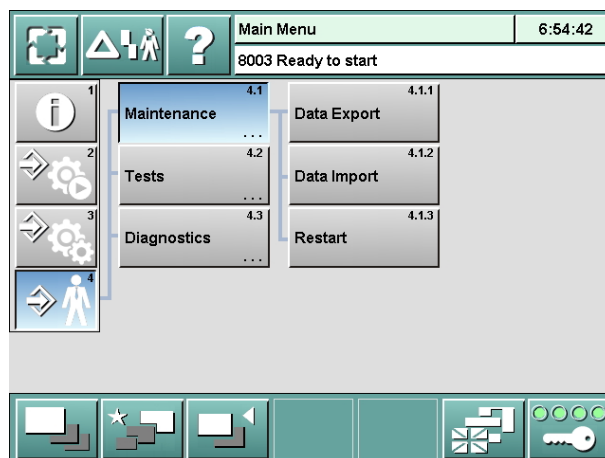


Figure 54: Main menu service

In the main menu, Service, information regarding maintenance and testing of the machine is located in the operating pages.

7 Commissioning

This chapter contains the information about the commissioning of the machine. Only Rieter technicians or Rieter-approved technicians are permitted to do the commissioning of the machine.

7.1 Commissioning Personnel

Only Rieter personnel or Rieter approved personnel are permitted to commission the machine at customer's location.

7.2 Putting into Operation

7.2.1 Commissioning

Machines manufactured by "Rieter Textile Systems" must always be assembled and commissioned by Rieter's own staff.

Should the assembly of new or existing plant be carried out by a third party, however, RIETER MACHINE WORKS LTD. declines all liability.

7.3 Cleaning Point

7.3.1 Grid

7.3.1.1 Grid adjustment

7.3.1.2 Production Settings

Optimise waste volume ▶ 58

Description ▶ 77

		2.1 Settings production	6:53:37
8002 Starting procedure			
Operating mode		Vario-Set ▼	
Number of assortments		4 ▼	
Assortment	Relative waste volume	Cleaning intensity	
1	2	0.4	
2	2	0.4	
3	2	0.4	
4	2	0.4	

Figure 55: Production settings

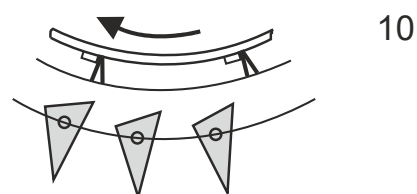
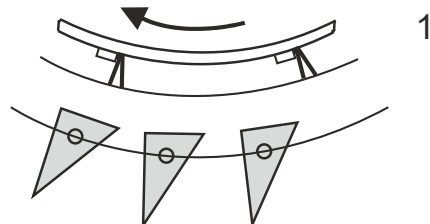
Vario-Set

Figure 56: Vario-Set

Vario-Set is the default setting for production.

Set the relative waste volume (1), (10).

Relative waste volume (grating setting)

Relative waste volume low	1.0 on scale
Relative waste volume high	10 on scale

At read-out, set a dark waste with few good fibres.

Cleaning intensity (speed of the cylinder)

Speed low 0.0	min. 480 rpm
Speed high 1.0	max. 960 rpm

7.4 Recommissioning

7.5 Put the Machine into Operation

7.5.1 Put the Machine into Operation

Check the function of the safety relevant components.

7.6 Setting the Suction Volumes for Material Transport

Transporting and installing the UNiclean ▶ 58

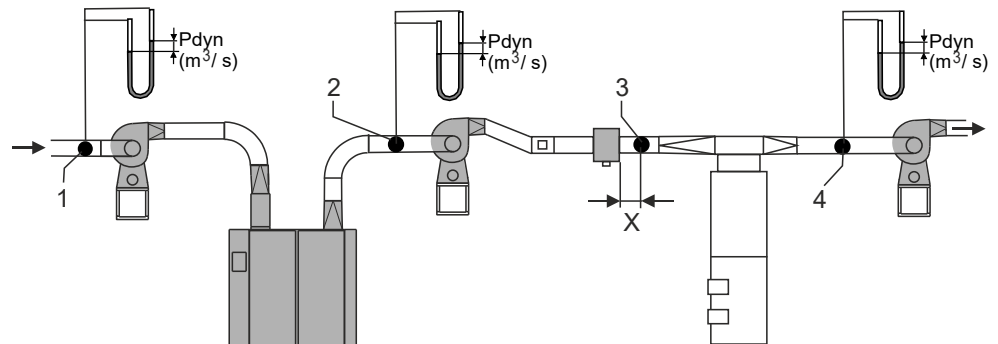


Figure 57: Setting the suction volumes for material transport

1. Set the main switch to the "OFF" position and secure with a lock.
2. See the Jossi operating manual.
3. Measure the air volume in a straight section of the pipework.

Air properties

Extraction point for upstream machine 1	See relevant operating manual
Air flow rate	
Measuring point for material entry 2	+ 0.60 - + 0.80 m³/s
Air flow rate	
Measuring point for material entry 2	+ 50 - + 150 Pa
Static excess pressure	
Measuring point of material discharge 3	+0.60 - + 0.80 m³/s
Air flow rate	

Measuring point of material discharge 3	- 50 - - 200 Pa
Static vacuum	
Measuring point for material delivery 4	+ 0.80 - + 1.20 m³/s
Air flow rate	
Measuring point for material delivery 4	- 50 - - 200 Pa
Static vacuum	

Ideally, each measuring point should be at a distance of 10 times the pipe diameter ahead of or beyond a bend, funnel, transition section, etc. If this is not possible, then select the measuring point as indicated in the diagram.

7.7 Set the Suction Values for Waste and Exhaust Air

Transporting and installing the UNClean ▶ 58

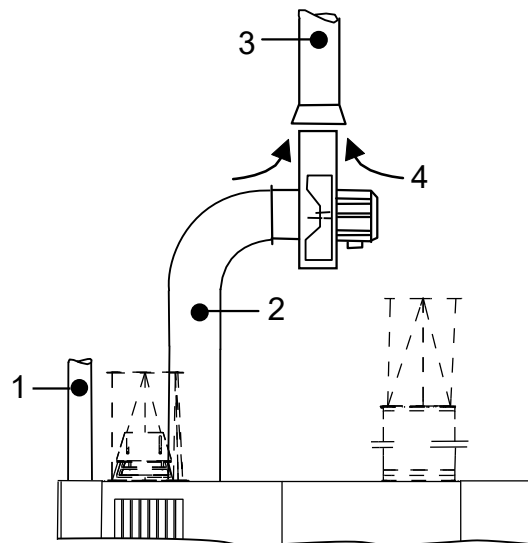


Figure 58: Set the suction values for waste and exhaust air

The filter system must treat the transport air for the material blown into the machine by the transport fan as exhaust air. Variations in the suction power of the filter installation are levelled by the open transfer of the transported air to this installation.

Setting the Suction Values for the Exhaust Air

1. Set the value at the measuring point **2**.

Values

Measuring point for exhaust air 2 Air flow rate	0.50 - 0.60 m³/s
Measuring point for exhaust air 2 Static vacuum	- 400 - - 700 Pa

Adjust the Vacuum for the Exhaust Air (Open Transfer)

Prerequisites Make sure that the criteria are obeyed:

- ✓ Air containing dust must never be blown out in the event of an incorrect air intake.
- 1. A slight vacuum has to be established at the measuring point **3**.

Quantity

Measuring point for exhaust air 3 Air flow rate	0.50 - 0.60 m³/s
Measuring point for exhaust air 3 Static vacuum	- 50 - - 150 Pa

Setting the Suction Value for the Waste

1. Set the suction device according to the specified value.

Quantity

Waste transport 1 Air flow rate	0.55 m³/s
Waste transport 1 Static vacuum	- 1000 Pa

7.8 Maintenance

7.8.1 Pull out the Waste Trough / Open the Flap

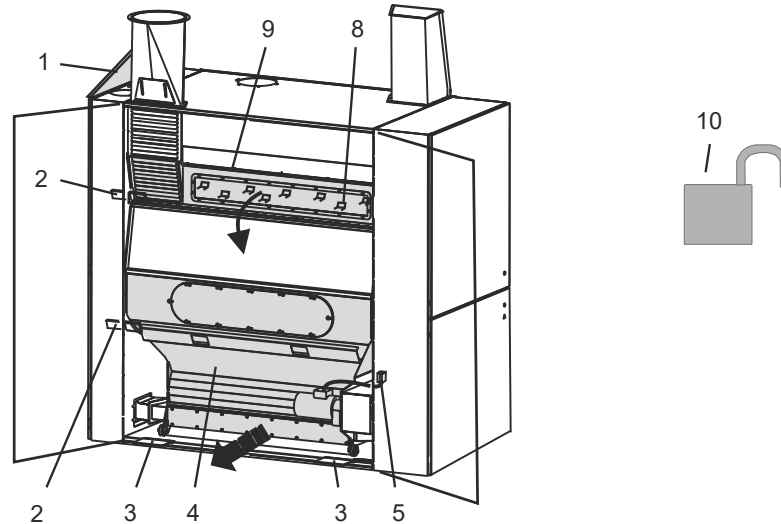


Figure 59: Pull out the waste trough / open the flap

1. Set the main switch to the "OFF" position and secure with a lock.

The waste trough **4** and the flap **9** are secured with safety switches with guard locking **2**. The waste trough can only be pulled out or the flap can only be flipped down when the cylinder **8** is at a standstill, the EMERGENCY STOP button has been pressed and the door **1** is open.

1. Switch OFF the material supply and the fans at the central blowroom controller. This prevents the waste being sucked onto the grating.
2. Switch off the machine. Wait until the cylinder has come to a standstill.
3. Press the EMERGENCY STOP switch. Wait until the symbol **10** "Door unlocked" appears.
4. Open door.
 - ⇒ The safety switches with guard locking release the waste trough and the flap.
5. Unplug the plug **5**.
6. Swing the ramp **3** forward and extend with the waste trough.
7. Uniformly extend the waste trough. The waste trough can tip over if it is not moved out carefully.
 - ⇒ The safety circuit prevents the machine from starting if the waste trough is extended.

The retracted waste trough must be secured with the ramps.

7.8.2 Opening the Doors in De-energised Status (Door Lock)

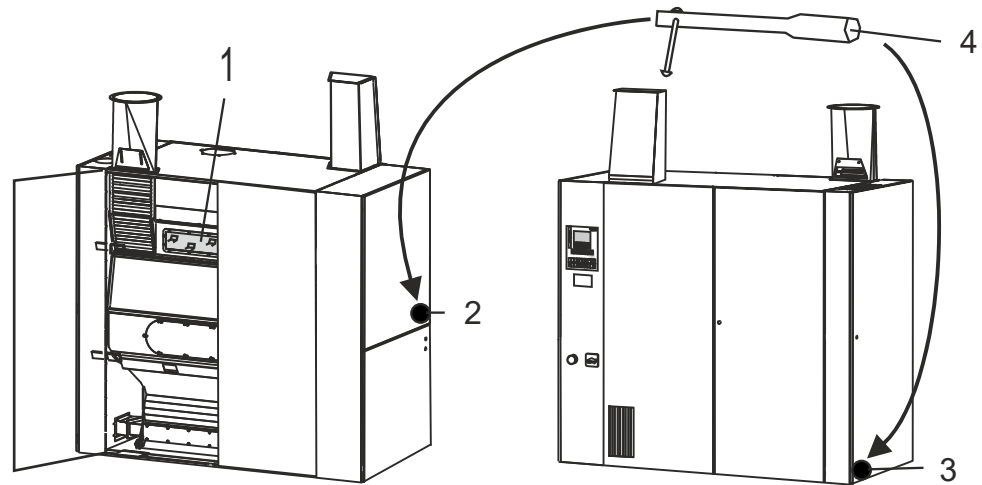


Figure 60: Opening the doors in de-energised status

In the event of a power failure or during commissioning when there is no power supply, proceed as follows to open the doors.

1. Through the view window, check to ensure that the spoked roll is at a standstill.
2. Only open the locking mechanism on the door **2**, **3**, when the spoked roll is at a complete standstill. To do this, turn the socket spanner **4** clockwise.
3. Lock the door by turning the socket spanner counter clockwise.

7.8.3 Opening Doors when Power is Available (Door Lock)

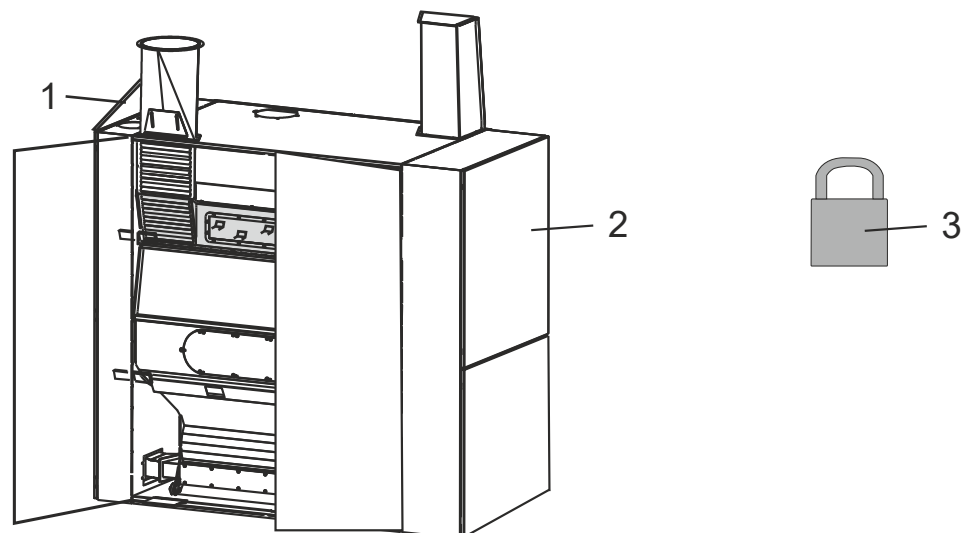


Figure 61: Opening doors when power is available

As long as the symbol **3** is displayed, the doors are locked.

The doors **1**, **2** are secured with safety switches equipped with guard locking.
The doors can only be opened when the spiked roll has come to a standstill.
The main switch must be on.

8 Operation

This chapter contains the information about the operation of the machine. This chapter contains the information about how to change the technology components.

8.1 General Information

Only approved personnel are permitted to operate the machine.

This chapter contains the information about how to:

- Use the operating elements.
- Monitor the machine during the production.
- Prevent faults because of the operators maintenance.
- Correct faults in the material flow.
- Operate all data screens.

Before the machine is operated, make sure that:

- The machine is ready for the operation.
- All doors and all covers are closed.
- The emergency stop button is unlocked.
- The main switch is set to the position ON.
- No fault message and no warning message are shown on the screen.

8.2 Switching on the Machine

8.2.1 Setting the Main Switch

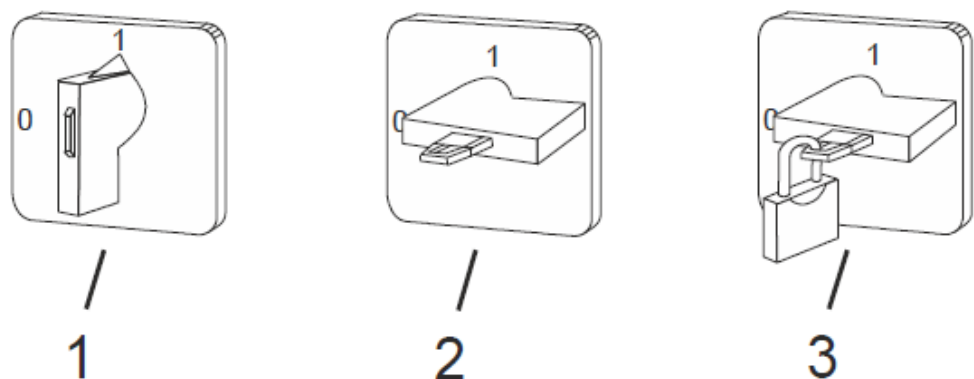


Figure 62: Setting the main switch

1. Switch ON the main switch **1**. In position "1" the machine is ready to start.
2. Switch OFF the main switch **2**. In position "0" the machine is de-energised. The machine cannot be started.

8.2.2 Operating the EMERGENCY STOP Button

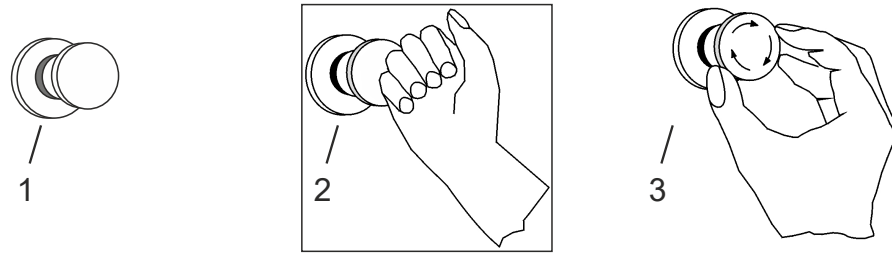


Figure 63: Operating the EMERGENCY STOP button

1. Activate the EMERGENCY STOP button **1**: To do this strike the EMERGENCY STOP button **2**. This stops the machine in an emergency. The drives will be stopped. The machine cannot be started, as long as the EMERGENCY STOP button is actuated.
2. Reset the EMERGENCY STOP button. The machine can be started.

8.3 Automatically Testing Components of the Safety Circuit

8.3.1 Testing the Safety Circuit

1. Use the following method to test the safety circuit:
2. The safety test of the machine is executed at each switch-on (main switch on) and when starting the machine. The test must be passed without error.
3. Replace a component in the safety circuit: Components of the safety circuit must only be replaced when the main switch (power off) is switched off. Components in the safety circuit must always be replaced in their entirety. After every warm start (main switch on) or a cold start the safety circuit is always tested automatically. The machine can only be started up again only when all components function.
4. In service mode on the operating page "4.2.6 Guard locking" the safety test is started manually with the Start key.
5. Safety components are listed under "Safety device" in the electrical circuit diagram.
6. A table for entering the safety test is provided in the electrical circuit diagram.

8.3.2 Self-Closing Feature

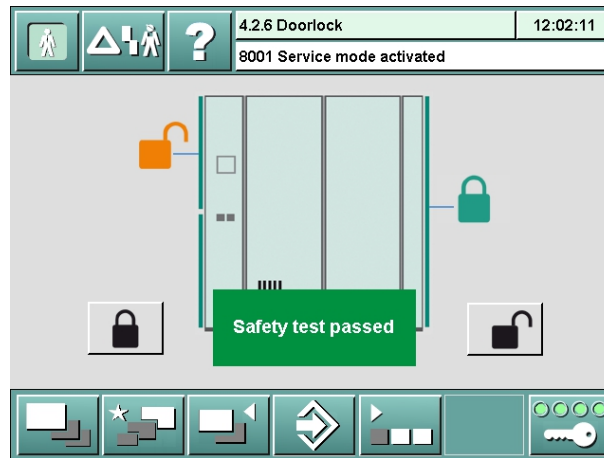


Figure 64: Self-closing feature

1. Set password authorization S3.
2. Switch to service mode.
3. Switch to page 4.2.6 "Self-closing feature".
4. Press the START key.

Result "Test passed"/"Test failed" is displayed.

8.4 Mechanically Testing Components of the Safety Circuit

8.4.1 Testing the Function of the Main Switch

Testing the function of the main switch

1. After repair, mechanically test the function of the main switch as follows:
2. Switch on the machine with the main switch. The machine starts.

8.4.2 Testing the Function of the EMERGENCY STOP Buttons

Testing the EMERGENCY STOP buttons

1. Mechanically test the function of the EMERGENCY STOP buttons after maintenance as follows:
2. Activate the EMERGENCY STOP button. This can also be executed when the machine is at a standstill.
3. Check the fault on the machine panel. Reset the EMERGENCY STOP button. Acknowledge the fault on the machine panel.

Result The machine is ready for operation.

8.5 Start-up

8.5.1 Cold Start



Figure 65: Cold start

After a cold start the screen "Cold start procedure" is displayed.

8.5.2 Languages



Figure 66: Languages

1. Preset a max. of 4 languages.
2. Select a display language.

8.5.3 Creating User Rights

Figure 67: Creating user rights

1. Set password authorization S4.
2. Create a new user.
3. Create a new password.
4. Determine the password authorization.

8.5.4 Access

Figure 68: Access

1. Select the user.
2. Select the password. The password level appears.
3. Go to the "Create user rights" screen via the "Persons with list" key.

8.5.5 Customer Data

Figure 69: Customer data

Prerequisites Make sure that the criteria are obeyed:

✓ For changes, password authorization S3 is required.

1. Enter the machine number of the line on the keyboard. Confirm the input.
2. Enter the customer name on the keyboard. Confirm the input.

8.5.6 Import Data

Figure 70: Import data

Prerequisites Make sure that the criteria are obeyed:

✓ For displays, password authorization S3 is required.

1. Insert the USB stick. Press "Connecting".
2. Select the data.
3. With "Import" load the data onto the machine. Wait until the import is completed.

8.5.7 Machine Data

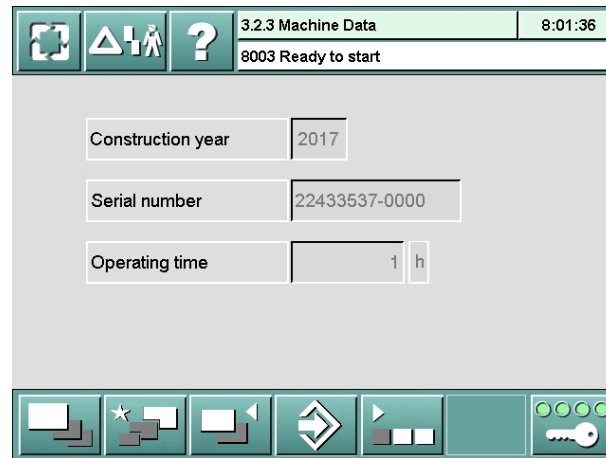


Figure 71: Machine data

The information concerning "Year of manufacture" and "Serial number" is pre-set in the factory.

The operating time increases with the operation of the machine.

8.5.8 Date, Time

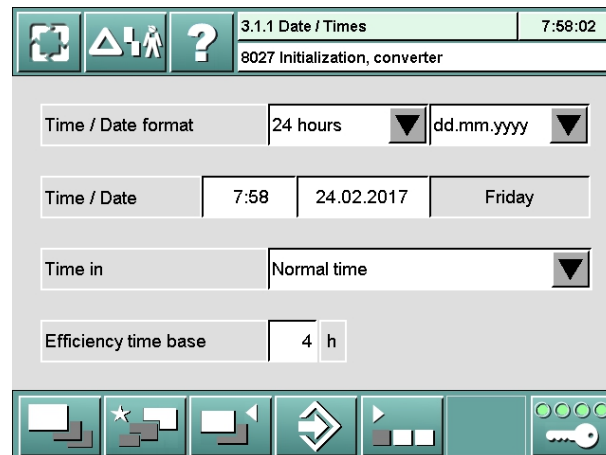


Figure 72: Date time

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ For changes, password authorization S3 is required.
1. Set date and time.

8.5.9 Settings – Vario-Set Production Mode

Assortment	Relative waste volume	Cleaning intensity
1	2	0.4
2	2	0.4
3	2	0.4
4	2	0.4

Figure 73: Settings – Vario-Set production mode

Prerequisites Make sure that the criteria are obeyed:

- ✓ For changes, password authorization S2 is required.
- 1. Set operating mode VarioSet. VarioSet is the standard operating mode.
- 2. Set the number of the assortments 1...4 here.
- 3. Set the relative waste volume 1...10 here.
- 4. Set the cleaning intensity 0...1.

8.5.10 Settings – Production Mode Emergency Operation Vario-Set

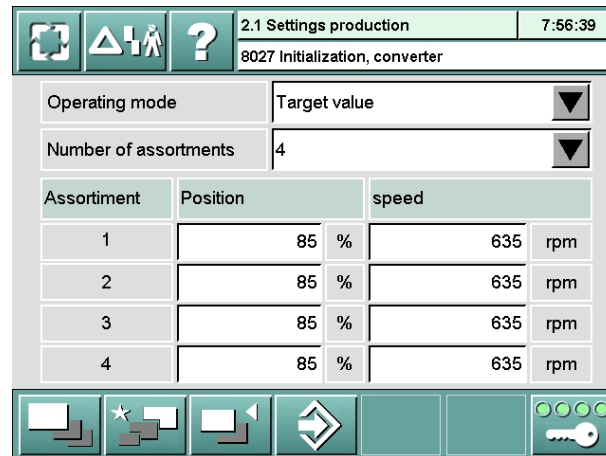
Assortment	Relative waste volume
1	2
2	2
3	2
4	2

Figure 74: Settings – production mode emergency operation Vario-Set

For changes, password authorization S2 is required.

1. Set operating mode, emergency operation, VarioSet.
2. Set the number of the assortments 1...4 here.
3. Select the relative waste volume with 1...10. Confirm the value.

8.5.11 Settings – Production Mode Setpoint



2.1 Settings production		7:56:39	
8027 Initialization, converter			
Operating mode	Target value		
Number of assortments	4		
Assortment	Position	speed	
1	85 %	635	rpm
2	85 %	635	rpm
3	85 %	635	rpm
4	85 %	635	rpm

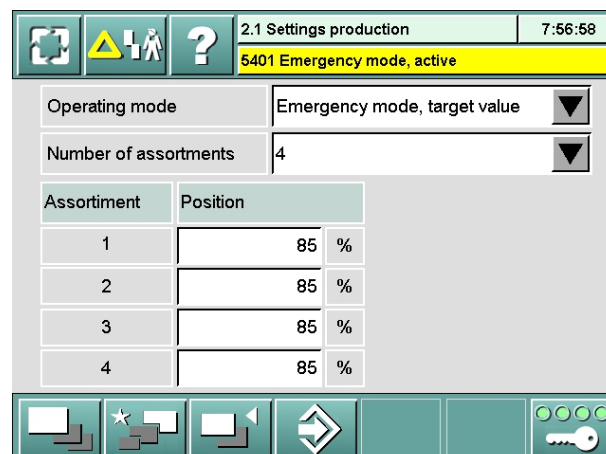
Figure 75: Settings – production mode setpoint

Prerequisites Make sure that the criteria are obeyed:

✓ For changes, password authorization S2 is required.

1. Select set point mode.
2. Set the number of the assortments 1...4 here.
3. Set the position of the electric cylinder with 1...100%. In this regard 1 % is closed and 100 % is open. The position of the electric cylinder causes the opening of the grate.
4. Set the speed at 480...960 rpm. In this regard a high speed of the spiked roller causes high cleaning intensity.

8.5.12 Settings – Production Mode Emergency Operation Setpoint



2.1 Settings production		7:56:58	
5401 Emergency mode, active			
Operating mode	Emergency mode, target value		
Number of assortments	4		
Assortment	Position		
1	85 %		
2	85 %		
3	85 %		
4	85 %		

Figure 76: Settings – production mode emergency operation setpoint

For changes, password authorization S2 is required.

1. Select set point mode.

2. Set the number of the assortments 1...4 here.
3. Set the position of the electric cylinder with 1...100%. In this regard 1% is closed and 100% is open. The position of the electric cylinder causes the opening of the grate.

8.5.13 Switch to “Specify User Rights”



Figure 77: Switch to “Specify user rights”

Go to the “Create user rights” screen via the “Persons with list” **1** key.

8.5.14 User Rights

1
2
3
4

Figure 78: User rights

1. Select the password authorization:
2. Password authorization S1 **1**: Function: Basic operation, Read data.
3. Password authorization S2 **2**: Function: Setting Advanced Settings, Machine and Production.
4. Password authorization S3 **3**: Function: Service Operation, Import data.
5. Password authorization S4 **4**: Function: User management.

8.5.15 Machine Set-up Values

3.1.3 Machine Setup Values		8:00:43
8007 Blowroom stop		
Machine type	B12	
Waste control system	Interval	
Interval	4	min
Communication with UNIconrol	Ethernet	
Delay interruption, TCP	10	s

Figure 79: Machine set-up values

1. For changes, password authorization S2 is required.
2. Select the machine type B12 or B17.
3. Set the waste controller:
 - Permanent: The discharge roller is active during vacuum.
 - Interval: The discharge roller is active at vacuum. Set the interval.
 - Manual: The discharge roller rotates when the key is pressed next to the discharge roller.
 - Deactivated: The discharge roller is deactivated.
1. Set the communication with the UNIconrol: Digital signals or Ethernet.
2. Set the delay of the warning during interruption of the Ethernet (TCP).

8.5.16 Network Configuration

3.2.1 Network Configuration		8:01:14
8003 Ready to start		
SPIDERweb communication	☐	
Machine subnet mask	255	255 0 0
Machine IP address	172	27 1 55
SPIDERweb Host IP address	172	27 1 1

Figure 80: Network configuration

For changes, password authorization S3 is required.

1. Change the machine IP address. In this process, ensure that the IP address per network only appears once.

8.6 Service mode

8.6.1 Inputs

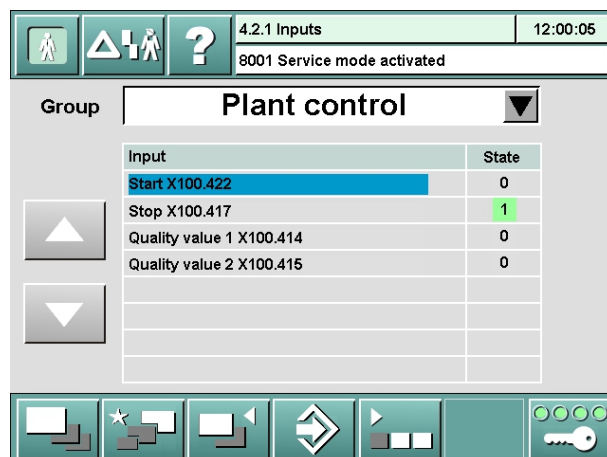


Figure 81: Inputs

1. To display, password authorization S3 is required.
2. Via the "Operating mode" button change to "Service mode".
3. Observe the input values according to system, faults, sensors, or diverse.
4. The input value is displayed via the long-range projector.

8.6.2 Outputs

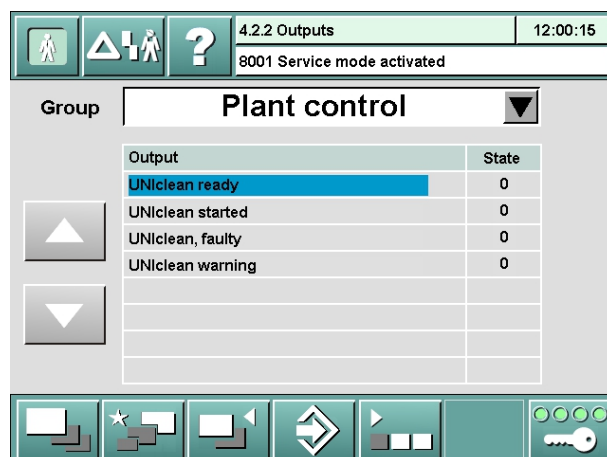


Figure 82: Outputs

1. To display, password authorization S3 is required.
2. Via the "Operating mode" button change to "Service mode".
3. The outputs are divided by system, faults, sensors, or diverse.
4. Switch OFF the motor protection switches of the spiked roll Q1 and the discharge roll Q2.
5. Set or reset the output value.

8.6.3 Discharge Roller

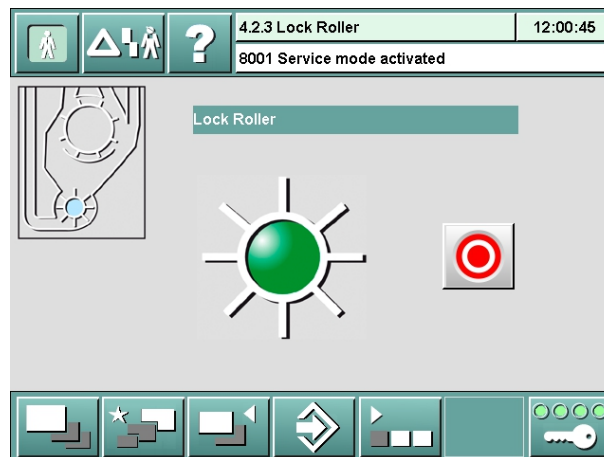


Figure 83: Discharge roller

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ To display, password authorization S3 is required.
1. Start the discharge roller with the START key.
 2. Stop the discharge roller with the Stop key.

8.6.4 Spiked Roller

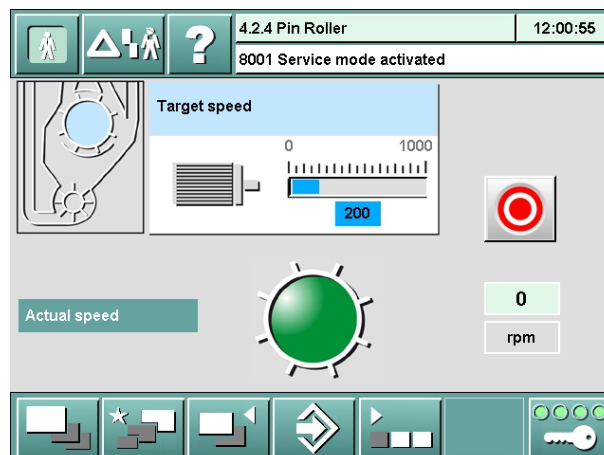


Figure 84: Spiked roll

1. To display, password authorization S3 is required.
2. Set the speed at 200...1000 rpm.
3. Start the spiked roll with the START button.
4. Stop the spiked roll with the STOP button.

8.6.5 Electric Cylinder

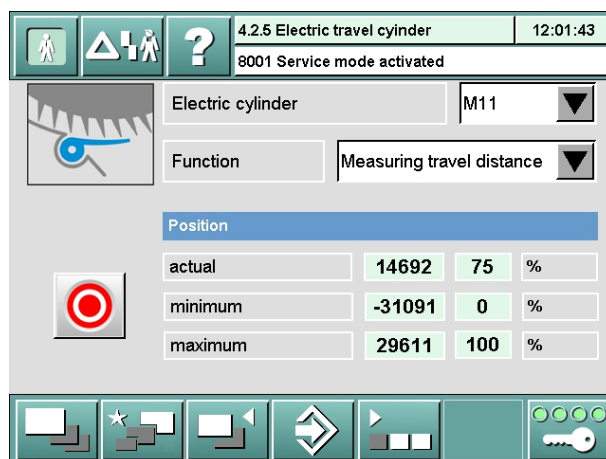


Figure 85: Electric cylinder

1. To display, password authorization S3 is required.
2. Select the electric cylinder.
3. Select the appropriate function.
4. Start by pressing the START key.
5. Press the STOP key to stop.

8.6.6 Self-closing Feature

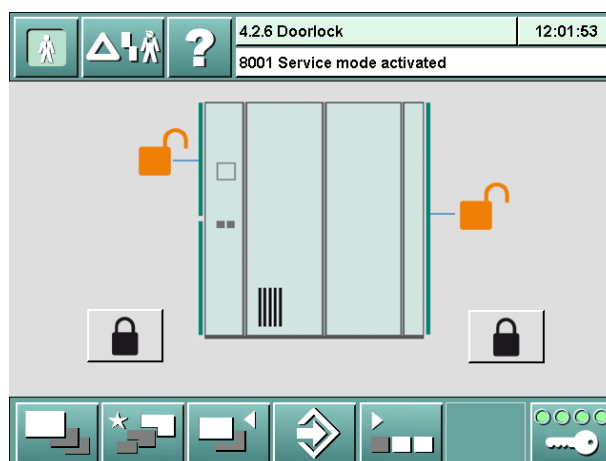


Figure 86: Self-closing feature_service mode

Prerequisites Make sure that the criteria are obeyed:

- ✓ To display, password authorization S3 is required.
- 1. Lock or unlock the doors via the buttons.
- 2. Start the safety check of the safety-relevant components of the safety circuit.
Document the safety check in the electrical system documentation under "Protocol Safety Circuit Loop".

8.6.7 Endurance Test

4.2.7 Endurance test		12:02:38
8028 Endurance test active		
Started	24-02-2017 12:02:29	
Stopped		
Test time	0 h 2 min 55 s	
Duration endurance test	0 h 00 min 09 sec	

Figure 87: Endurance test

1. To display, password authorization S3 is required.
2. Start the continuous test by pressing the START key.
3. Stop the continuous test by pressing the STOP key.
4. Set the test time, if the test should run for a specific time.

The test runs until the STOP key is depressed, an error occurs or the test time has elapsed.

8.7 Electronic Documentation (e-DOC)

8.7.1 Navigating through the e-DOC (Electronic Documentation) Program

Finding Information on the Contents of e-DOC



Figure 88: Navigating through the e-DOC (electronic documentation) program

Information on the contents of e-DOC can be found in “Manuals and diagnostics”

1

The e-DOC program contains the following technical documents relevant to the machine: Operating manual, troubleshooting information, spare parts catalogue and spare parts ordering information, operating manuals in PDF format, spare parts catalogues and electrical documentation, marketing information, training information and forms.

The following actions are possible:

1. Ordering of spare parts.
2. Retrieval of information on the fitting and removal of spare parts.
3. Retrieval of information on rectifying faults.
4. Search for technical terms.

8.7.2 Opening e-DOC

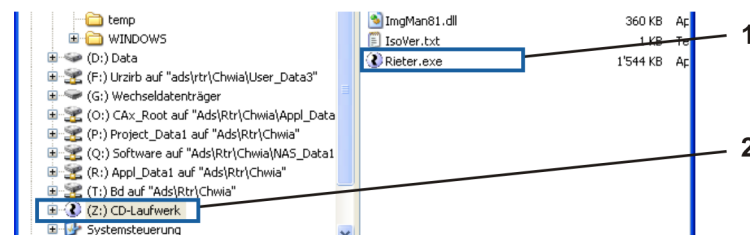


Figure 89: Opening e-DOC

1. Select the appropriate drive **2** and open e-DOC **1**.

The relevant (country-dependent) WINDOWS operating system has to be used to open the e-DOC program, so that the lines are displayed correctly.

8.7.3 Selecting the Language and Accepting the License Agreement

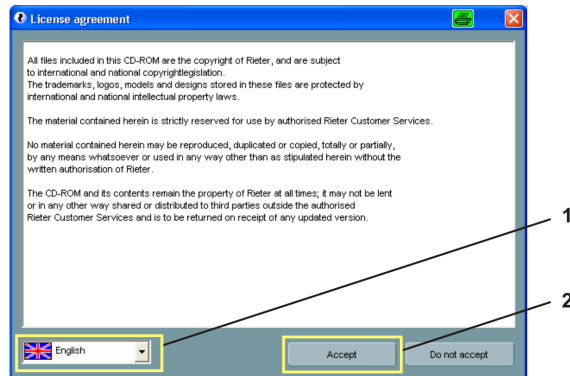


Figure 90: Selecting the language and accepting the licence agreement

1. Select the language for the e-DOC program **1**.
2. Read and accept the license agreement **2**.

8.7.4 Opening the Home Page

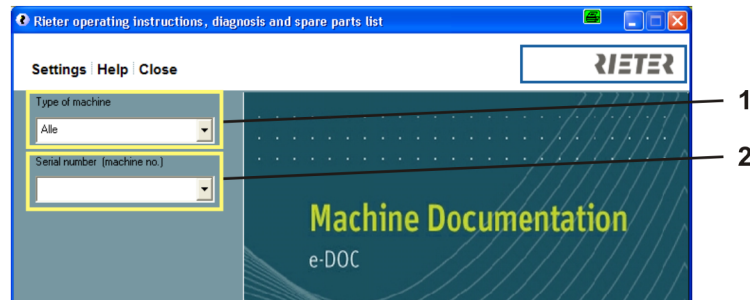


Figure 91: Opening the home page

1. Select the machine type **1** and the machine number **2**.

8.7.5 Opening the “Settings” Menu and Entering Data

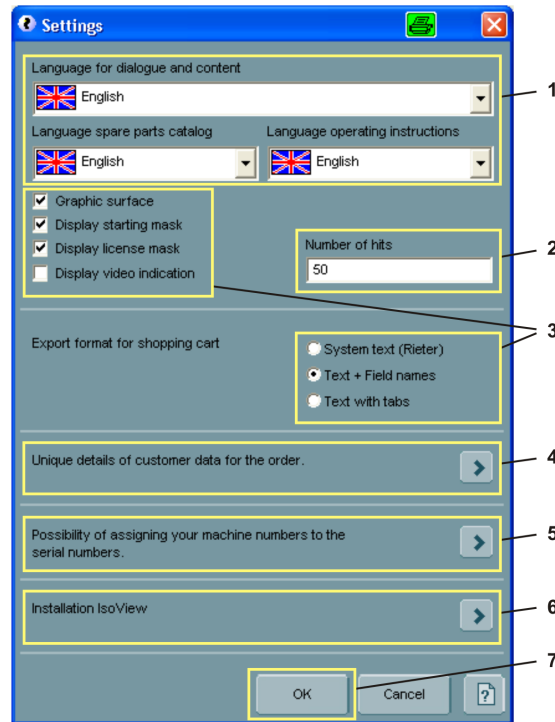


Figure 92: Opening the “Settings” menu and entering data

1. Select the languages for dialogue and content, the spare parts catalogue and the operating manual **1**.
2. Select a limit for the number of search results **2**.
3. Make modifications to the output display format **3**.
4. Enter customer data for orders **4**.
5. Match machine data **5**.
6. Install the ISOView program **6**.
7. Click on OK to confirm the settings **7**.

8.7.6 Entering Ordering Address

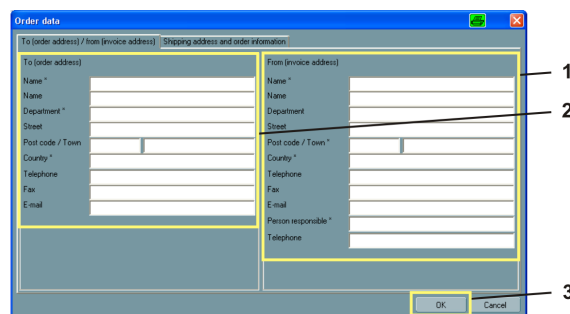


Figure 93: Entering ordering address

1. Enter ordering address **1** and billing address **2**.
2. Click on OK to confirm the data **3**.

8.7.7 Entering Recipient's Address

Figure 94: Entering recipient's address

1. Enter the recipient's address, the supplier number and further order-related details **1**.
2. Click on OK to confirm the data **2**.

8.7.8 Opening the e-DOC Overview Screen

Figure 95: Opening the e-DOC overview screen

1. Open the “Help” menu, if required, to bring up a description of the current page **1**.
2. Select the required technical document **2** (operating manual, troubleshooting information, spare parts catalogue, spare parts ordering information)
3. Select the required technical document in PDF format **3** (operating manual, spare parts catalogue, electrical documentation)
4. Select information **4** on marketing and training, and select forms

8.7.9 Opening the Spare Parts Catalogue

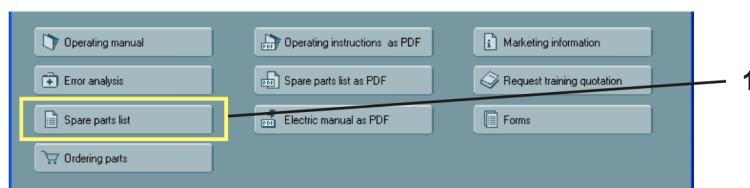


Figure 96: Opening the spare parts catalogue

1. Click on the appropriate button to open the spare parts catalogue **1**.

8.7.10 Navigating through the Spare Parts Catalogue

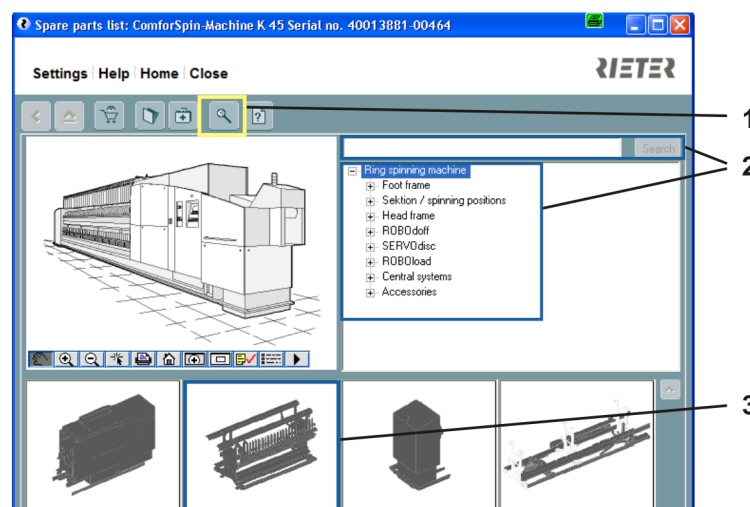


Figure 97: Navigating through the spare parts catalogue

1. Navigate via full-text search **1**, or through text **2** or images **3**. To this end, open the selected subassembly by double-clicking as appropriate.

8.7.11 Navigating through Lower-Level Sub-Assemblies in the Spare Parts Catalogue

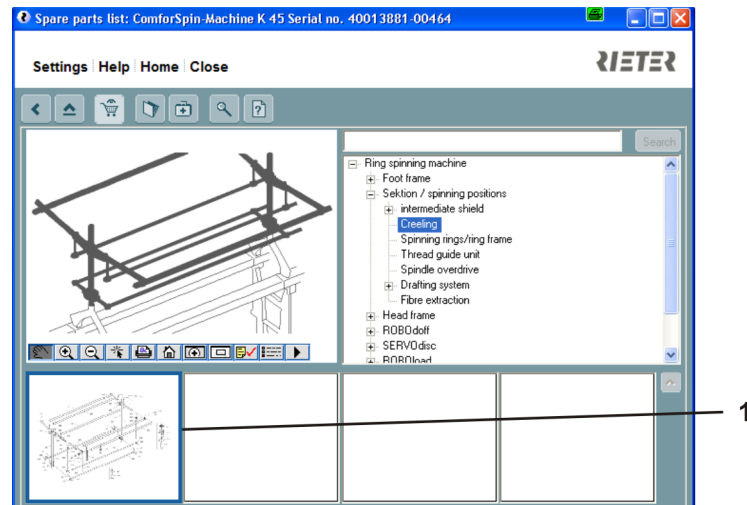


Figure 98: Navigating through lower-level sub-assemblies in the spare parts

1. Navigate through the images **1**. To this end, double-click the image.

8.7.12 Selecting Spare Parts for Sub-Assemblies

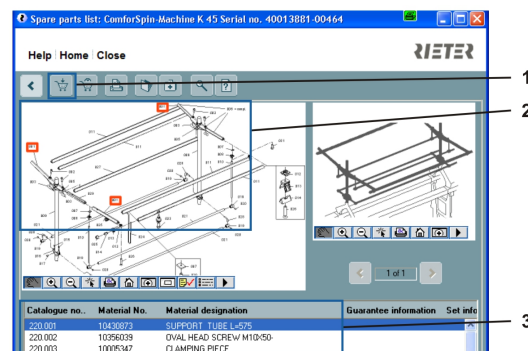


Figure 99: Selecting spare parts for sub-assemblies

1. Mark the reference numbers of spare parts **2** or select the spare parts from the table **3**.
2. Open the shopping basket **1**.

8.7.13 Filling in the Order Form

Figure 100: Filling in the order form

A separate order form has to be filled in for each spare part.

The order form appears after the shopping basket is opened. The data for the selected spare part is automatically added to the order form by the system **1**.

1. Enter the required quantity for the spare parts **2**.
2. Check the details on the order form and click on OK to confirm the order **3**.

After confirming the order, the spare part is “placed” in the shopping basket.

8.7.14 Saving the Shopping Basket Information

Type of machine	Serial no.	Catalogue no.	Material No.	Material designation	Number
K 45 (ComforSpin-Machine)	40013881-00464	220.001	10430873	SUPPORT TUBE L=575	2
K 45 (ComforSpin-Machine)	40013881-00464	220.002	10356039	OVAL HEAD SCREW M10x50	4
K 45 (ComforSpin-Machine)	40013881-00464	220.003	10005347	CLAMPING PIECE	2

Figure 101: Saving the shopping basket information

1. Check the shopping basket contents **2**.
2. Copy the shopping basket information to the clipboard **1**.

3. Save the shopping basket information via the “Save as ...” function **3** or the “Save” function **4**.

8.7.15 Example of an Order

Order data

To (order address):
 From (invoice address):
 Shipping address:
 Person responsible:
 Telephone:
 Supplier number:
 Customer reference:
 Dispatching regulations and means of transport:
 Additional information for order:
 Order list:

K 45 40013881-00464 ()

Item	Cat. no.	Material no.	Designation	Number
0010	220.001	10430873	SUPPORT TUBE L = 575	2
0020	220.002	10356039	OVAL HEAD SCREW M10x50	4
0030	220.003	10005347	CLAMPING PIECE	2

Date 2012-04-04 Signature (person responsible)

Figure 102: Example of an order

1. Check the data shown on the order form **1**.

8.7.16 Switching from the Spare Parts Catalogue to the Operating Manual

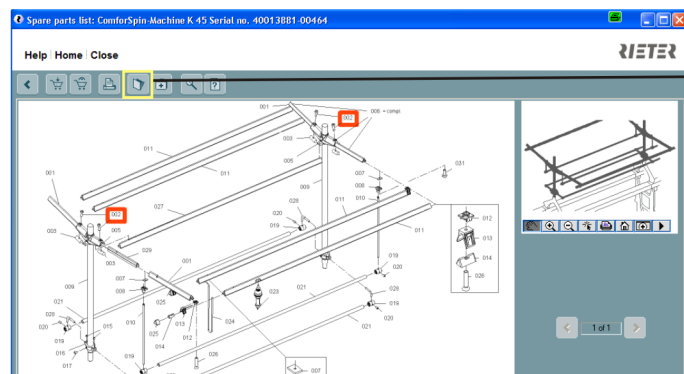


Figure 103: Switching from the spare parts catalogue to the operating manual

1. Click on the appropriate button to switch from the spare parts catalogue to the operating manual **1**.

8.7.17 Navigating through the Operating Manual

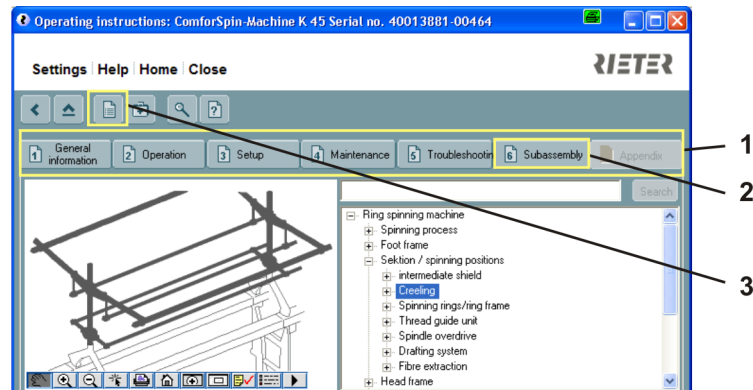


Figure 104: Navigating through the operating manual

1. Use the structure of the chapters to navigate through the operating manual **1**.
2. In the “Sub-assemblies” chapter, search according to handling instructions, e.g. fitting of spare parts **2**.
3. Switch to the spare parts catalogue **3**.

8.7.18 Searching for Handling Instructions in the Operating Manual

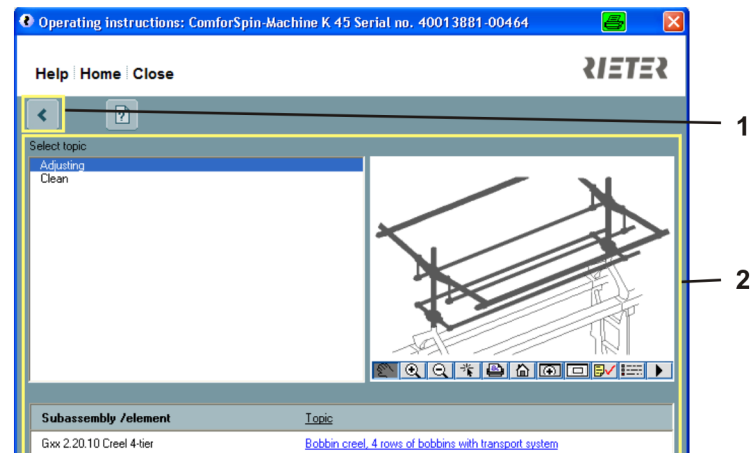


Figure 105: Searching for handling instructions in the operating

1. Read the handling instructions (e.g. for “Settings”) in the operating manual and then carry them out **2**.
2. Go back one page **1**.

8.7.19 Opening the Operating Manual

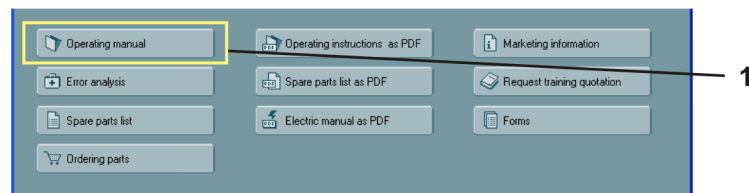


Figure 106: Opening the operating

1. Click on the appropriate button to open the operating manual **1**.

8.7.20 Navigating through the Operating Manual

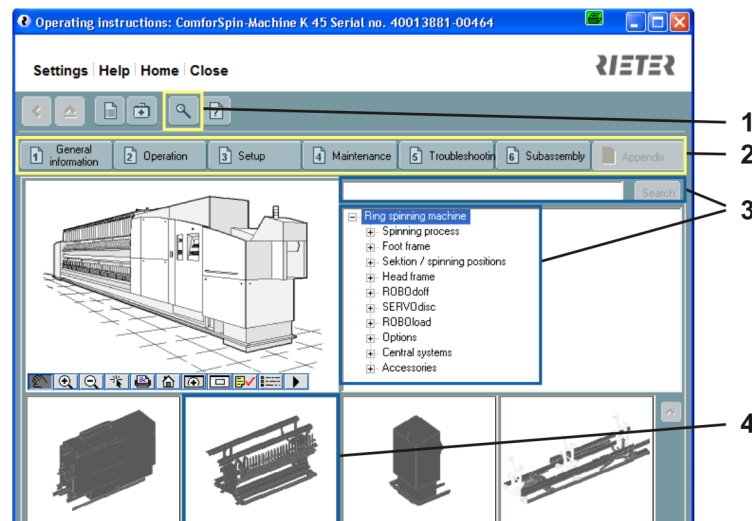


Figure 107: Navigating through the operating manual

1. Navigate via full-text search **1**, or through chapters, text **2** or images **3**.

8.7.21 Opening the Troubleshooting Information Page

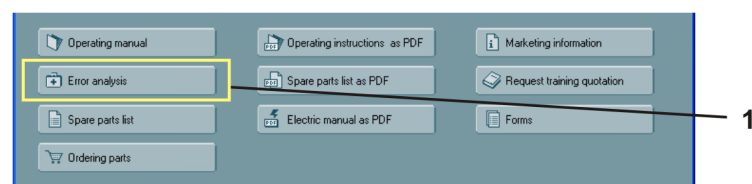


Figure 108: Opening the troubleshooting information page

1. Click on the appropriate button to open the troubleshooting information page **1**.

8.7.22 Entering the Fault Code

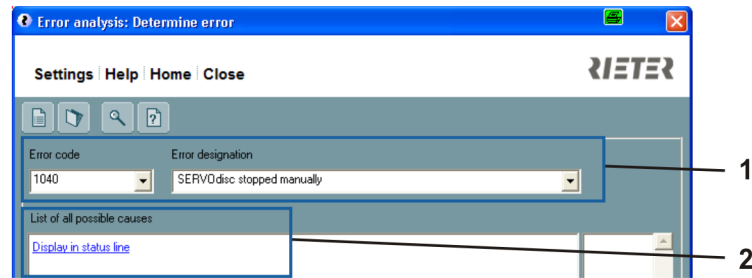


Figure 109: Entering the fault code

1. Enter the fault code or select from the list **1**.
2. Select suggestion **2**.

8.7.23 Rectifying Faults

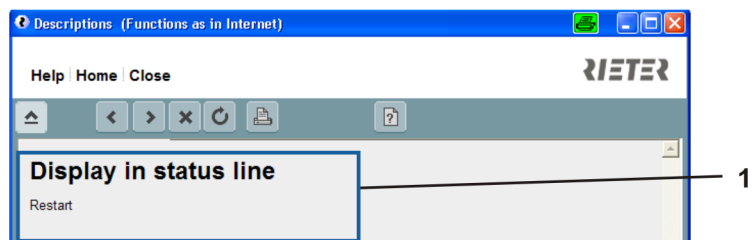


Figure 110: Rectifying faults

1. Read and then carry out the work instructions **1**.

8.7.24 Directly Opening the Order Form for Spare Parts

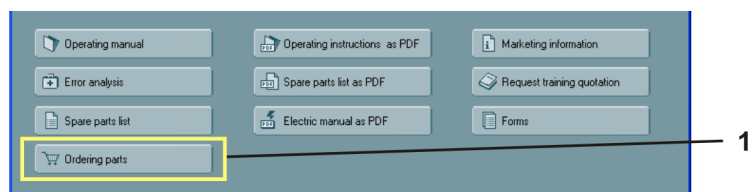


Figure 111: Directly opening the order form for spare parts

1. Click on the appropriate button to open the order form for spare parts **1**.

8.7.25 “Filling” and “Saving” the Shopping Basket

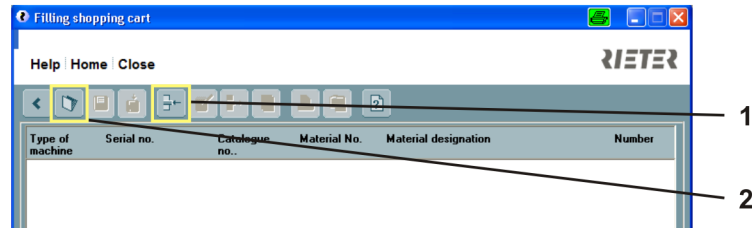


Figure 112: “Filling” and “saving” the shopping basket

1. Enter the information for spare parts in the order form **1**. Enter the data manually.
2. Save the shopping basket information **2**.

8.7.26 Closing the e-DOC Program

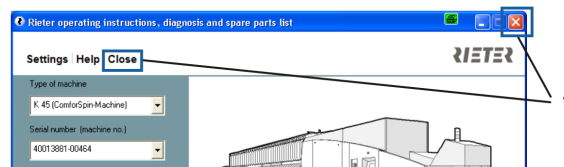


Figure 113: Closing the e-DOC program

1. Click on the appropriate button to close the e-DOC program **1**.

8.8 Waste Trough and Exhaust Air

8.8.1 Draw Off Waste with Separate Filter Box

Measurements ▶ 59

Setting aim: Determine waste volume

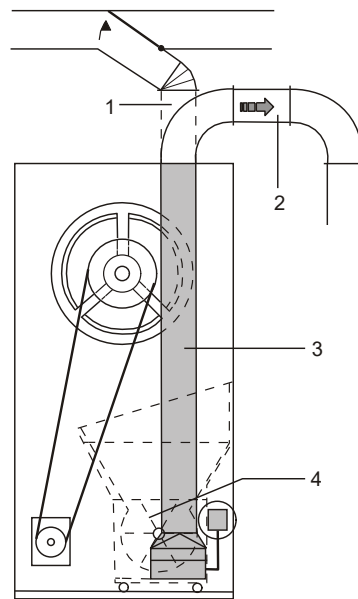


Figure 114: Draw off waste with separate filter box

Draw Off Waste with Separate Filter Box.

1. Remove pipeline **1**.
2. Fasten a new pipeline **2** or a hose to a filter box.
3. Restart the machine.
4. Switch ON the connected suction unit for sampling.
5. The discharge roll **4** rotates when there is a vacuum in pipeline **3**.

Test duration and calculation are described under "*Technical Definitions and Formulas* ▶ 42".

1. After completion of the measurements, re-install the pipeline at its original position.

8.8.2 Determining the Waste Volume

Measurements ▶ 59

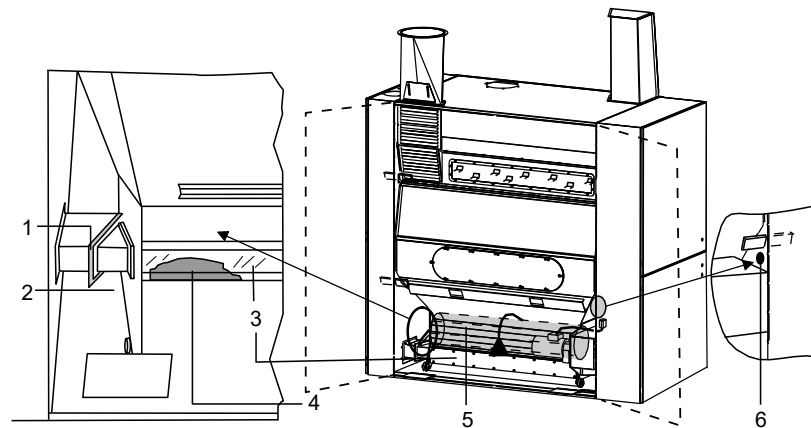


Figure 115: Determine the waste volume

Determining the Waste Volume

1. Insert a baffle plate **1** between the waste trough and the suction duct.

Test duration and calculation are described under "Technical Definitions and Formulas ▶ 42."

1. Set the rotation function of the discharge roll **5** to "Manual".
2. For sampling, the discharge roll **5** must be rotated by pressing push-button **6**. The discharge roll rotates as long as push-button **6** is kept depressed.
3. Remove the window **3** and take out the waste **4**.
4. After carrying out the measurement, remove the baffle plate and install the window **3**.
5. Set the rotation function of the discharge roll to the previously set values again.

8.8.3 Determine Dust Volume

Measurements ▶ 59

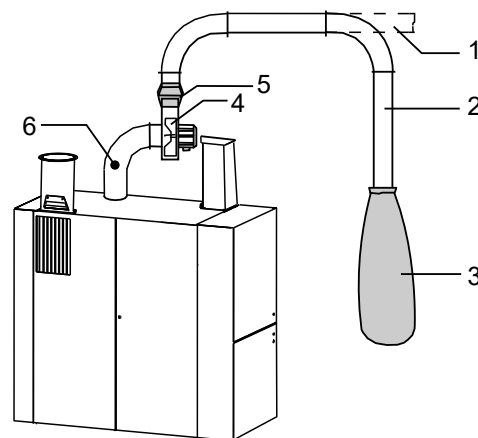


Figure 116: Determine dust volume

Preparatory Work

1. Check the air conditions for the material transport.

Setting the Suction Volumes for Material Transport ▶ 79

1. Check the air conditions for the exhaust air (dust extraction). For this, use filter bags of fine-mesh fabric.

Set the Suction Values for Waste and Exhaust Air ▶ 80

Prerequisites Make sure that the criteria are obeyed:

- ✓ If no individual separation filter is available, the piping **4** downstream of the fan **1** must be diverted.
1. Close the open transfer unit **5** for the duration of the measurement.
 2. Weigh the filter bag **3**. Note the weight.
 3. Fasten the filter on the pipeline **2**.
 4. Start the machine.
 5. Measure the air flow rate at the measuring point **6**.
 6. For the measurement, keep the air flow rate constant in pipeline **2**. Replace the filter bag, should the measured air flow rate drop below the minimum range. If necessary, remove the filter sack **3** during the test and note the dust weight.

The test duration is at least 8 hours.

1. Remove the filter bag. Calculate the dust weight. The difference in bag weight at the end of the measurement is the dust weight.
2. Calculation of the dust weight in %: (100% x dust weight in kg, divided by the production (kg) during the measurement)

8.8.4 Waste Trough

8.8.4.1 Differential Pressure Switch

8.8.4.2 Waste Extraction Control through Differential Pressure Switches

Waste Extraction ▶ 59

Differential pressure switch ▶ 49

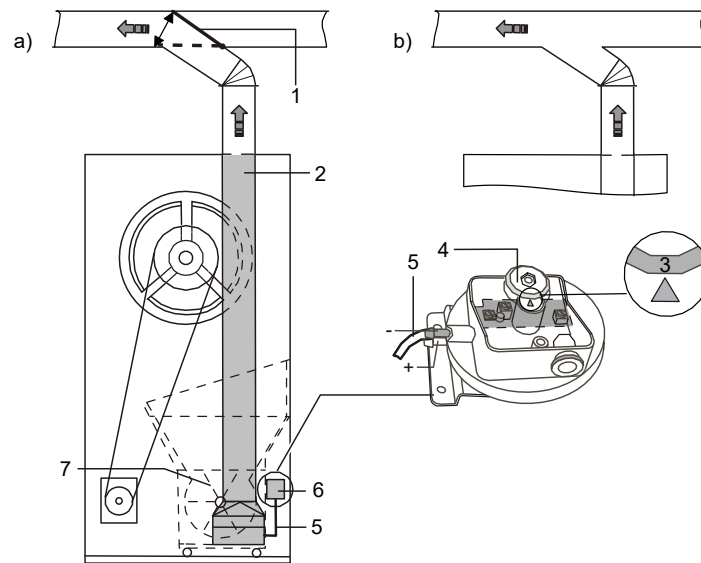


Figure 117: Waste extraction control through differential pressure switches

a Waste extraction controlled by the flap and differential pressure switches

b Waste extraction controlled by the machine controller (without flap and differential pressure switches)

Waste extraction control through differential pressure switches

1. Set the adjustment dial **4** to the **3** position.
2. Close the door.
3. Put the system into operation.
4. When the flap **1** is open, i.e. when there is a vacuum in duct **2**, the discharge roll **7** must rotate.
5. If the discharge roll does not rotate, then the vacuum is insufficient, the differential pressure switch setting **6** is set too high, or the pipeline **5** is clogged.
6. The discharge roll rotates even when flap is closed. The flap does not close correctly, the flap contains too much leak air.
7. The setting at differential pressure switch is too low.

8.8.4.3 Waste Extraction, Control without Differential Pressure Switches

Waste Extraction ▶ 59

The time between discharge roll start processes is set. This setting influences the cleanliness of the waste trough.

Setting aim: The discharge roll should rotate as little as possible; however, as often as needed to keep the waste trough clean and free of blockage.

Waste Extraction, Control without Differential Pressure Switches

The time between discharge roll start processes is setting the data screen. The basic setting is 4 minutes.

8.9 Maintenance

8.9.1 Alarm, EMERGENCY STOP on the Machine Triggered

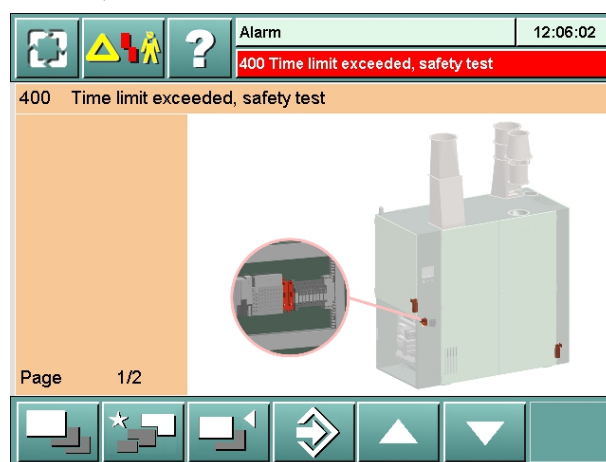


Figure 118: Alarm, EMERGENCY STOP on the machine triggered

Alarm, EMERGENCY STOP on the machine triggered.

8.9.2 Alarms/Warnings



Figure 119: Alarms/warnings

1. Warnings and alarms are shown with number, time and description.
2. Filter the alarms.
3. Acknowledge the alarms.

8.9.3 Event History

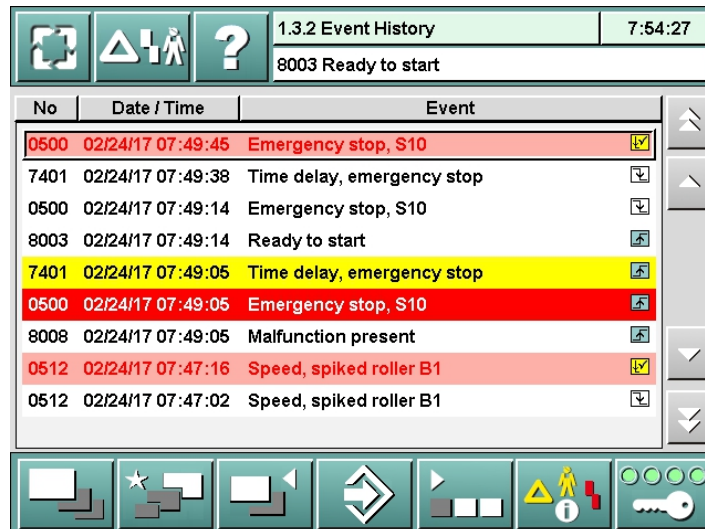


Figure 120: Event history

The history of the alarms is displayed.

The events can be filtered by fault, warning, maintenance warning or message.

8.9.4 Value Change – Log

		1.3.3 Value changes history	7:56:10
		8003 Ready to start	
Date / Time	Parameter		
24.02.2017 6:53:33	Number of assortments 3 -> 4, Administrator	(2.1)	
24.02.2017 6:53:22	Waste control system Interval -> Continuous, Administrator	(3.1.3)	
24.02.2017 6:53:18	Communication with UNlcontrol Ethernet -> Digital, Administrator	(3.1.3)	
24.02.2017 6:53:10	Number of assortments 1 -> 3, Administrator	(2.1)	
24.02.2017 6:52:57	Communication with UNlcontrol Digital -> Ethernet, Administrator	(3.1.3)	
24.02.2017 6:52:54	Waste control system Continuous -> Interval, Administrator	(3.1.3)	

Figure 121: Value change – log

Relevant value changes are displayed.

8.9.5 Event Statistics

1.3.4 Event Statistics
7:54:13

8003 Ready to start

General counter

Clear time
24.02.2017
6:49:13

No.	Event	#	min	min
500	Emergency stop, S10	11	3	5
501	Front door open, S1	1	0	0
503	Connection monitoring, discharge roller	1	0	0
512	Speed, spiked roller B1	2	9	23
5205	Ethernet to UNlcontrol interrupted	1	0	0
5502	Speed, spiked roller B1	2	0	0
7401	Time delay, emergency stop	4	31	0

Figure 122: Event statistics

Past events can be filtered.

8.9.6 Data Export



Figure 123: Data export

Password authorization S3

1. Insert the USB stick.
2. Select the data.
3. With "Export" load the data onto the USB stick.

8.9.7 Acknowledge Alarm

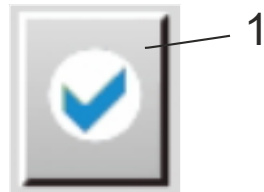


Figure 124: Acknowledge alarm

Acknowledge the alarm **1**.

8.9.8 Filter Event



Figure 125: Filter event

The history of the alarms is displayed.

The events can be filtered by warning **1**, maintenance warning **2**, report **3** and alarm **4**.

8.10 Machine Overview – Ready to Start

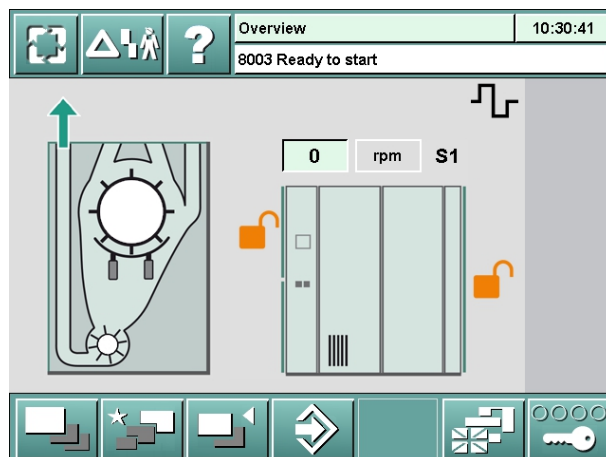


Figure 126: Machine overview – ready to start

The rpm of the spiked roller, the assortment and the type of data communication to the UNicontrol are displayed.

The machine is ready to start:

The doors are closed (display green locks).

The machine is in automatic mode.

No active faults are present.

8.11 Machine Info

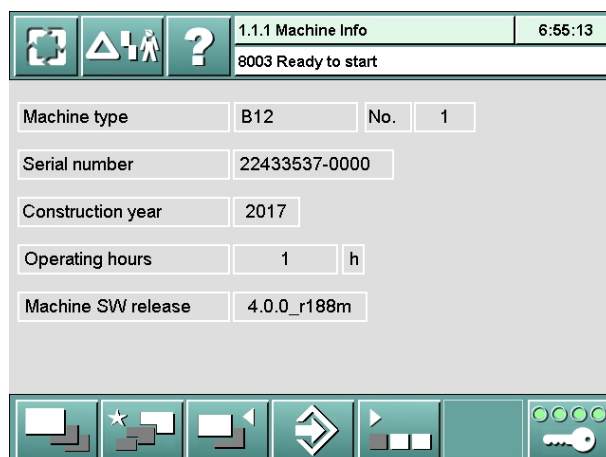


Figure 127: Machine info

The information concerning the machine is displayed.

8.12 Frequency Converter

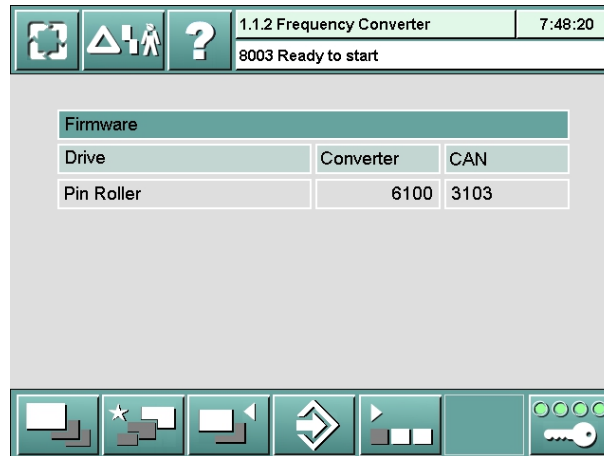


Figure 128: Frequency converter

The software version of the frequency converter and the CAN module are displayed.

8.13 Efficiencies

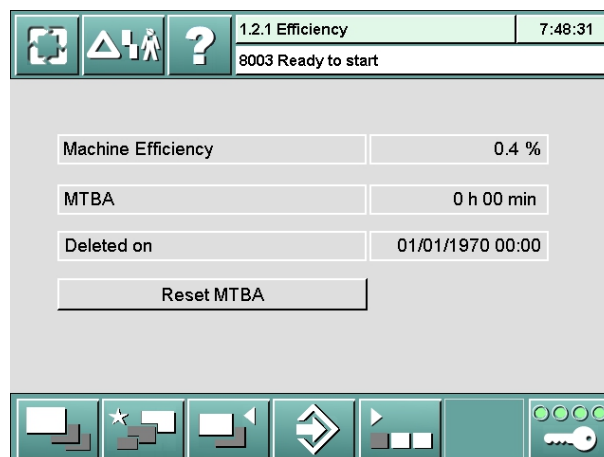


Figure 129: Efficiencies

The efficiency of the machine is calculated.

Efficiency of the machine: Calculated machine efficiency of the last 2, 4 or 8 hours.

The MTBA value can be reset. (Mean time between assistance) this is the time in which no change was performed. The MTBA value is calculated as an average.

8.14 Actual Values – Drives

			1.2.2 Actual values of drives	7:48:42
8003 Ready to start				
Speeds		Actual	Nomin.	
Pin Roller		0	0	rpm
Position		Actual	Nomin.	
Front grating		53	0	%
Rear grating		14	0	%
Vario-Set				
Assortment			1	
Potentiometer, front electric cylinder			0.4	
Relative waste			2.0	

Figure 130: Actual values – drives

Actual values and setpoints of the drives are displayed.

8.15 I/O Overview

			1.2.3 I/O Overview	7:48:52
8003 Ready to start				
Module	A12	Type	X20DO8322	
Signal	State		State	Signal
K31.A1	0	DO01	DO02	0 K30.A1
K33.A1	0	DO03	DO04	0 K32.A1
K5.A1	0	DO05	DO06	0 K1.A1
K21.A1	0	DO07	DO08	0 -

Figure 131: I/O overview

1. Select the I/O module.

Result Thus, the conditions of the I/O channels are displayed.

8.16 Display Properties

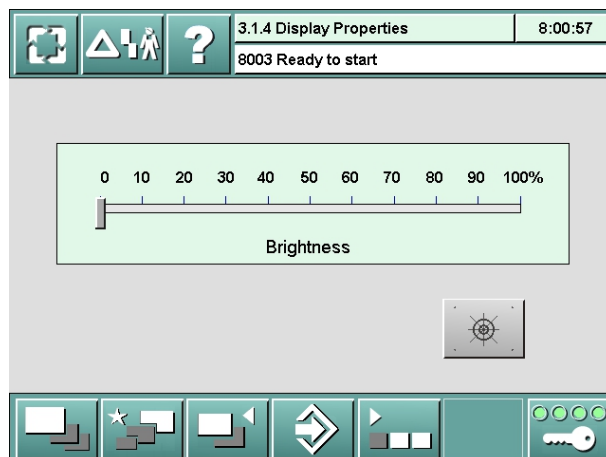


Figure 132: Display properties

Set the brightness of the screen.

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9 Troubleshooting

This chapter contains the information about the fault list with the cause and remedies of software, production, and machine faults.

9.1 About the Fault Message Lists

The fault message lists contain maximum 5 columns. The columns contain the information that follows:

Table Head	Explanation
Fault code	The fault code is the number of the fault.
Fault text	A short text with the description of the fault shows on the operating unit.
Fault cause	The fault cause shows the condition that started the fault. 1 or more causes are shown. If necessary, the top field for a fault cause gives more information, such as the machine unit.
Remedy	The remedy shows the alternatives how to correct the fault.
Fault type	The fault type shows icons that give the alarm level of the fault. See the table below.

Alarm Level	Fault icon	Influence on production	Explanation
Alarm		The production stops.	The alarm immediately stops the production of the machine. No production is possible until the fault is repaired. The fault cause is in units or functions. The units or functions stay in the fault condition or delete the fault condition automatically on specified conditions. The alarm can refer to the machine or a procedure. The alarm shows on the operating unit. The alarm shows with a signalization. Only the primary fault shows. Secondary faults, caused by the primary faults, are frequently not signaled.

Alarm Level	Fault icon	Influence on production	Explanation
Warning message		The production continues, but the output may be decreased.	The warning messages do not immediately decrease the production. Steps must follow as soon as possible to prevent that the production goes down. Works are necessary to prevent a production stop. The fault cause is in units or functions. The warning message can refer to the machine or a procedure. The warning message shows on the operating unit. The warning message shows with a signalization. Subject to the fault cause, a warning message can get an alarm at any time.
Maintenance warning		The production continues.	A maintenance warning tells the maintenance personnel to do specified works at the machine. The maintenance warnings are not caused by a maintenance schedule. The maintenance warnings are caused by a monitoring software for the machine units. A maintenance warning always refers to the machine. The 2 types of maintenance warnings are: – Do the maintenance as soon as possible. Get maintenance personnel in less than a day. – Do the maintenance during the next timed maintenance interval. The maintenance warning shows with a signalization. Subject to the fault cause, a maintenance warning can get an alarm at any time.

Data in curly brackets {...} are placeholders for a variable number or a variable text in the fault message.

9.2 About Error Messages

9.3 Classification of Error Messages

The 2 types of error messages are warning and error. The warning messages are used to show, for example, when the can is full or empty. When a warning message shows, the procedure continues; but an intervention by the operator is necessary.

The error messages are shown when the procedure stops and an operator's intervention is necessary.

9.4 Deleting Error Messages

The error messages need to be deleted after the error is corrected. The deletion must be done in the data screen.

9.5 Faults Not Shown on the Display

The operator identifies the fault that is not shown on the display when the machine is in the operating state.

9.6 Faults Shown on the Display

The faults of the machine are shown in the operating unit of the machine.

9.7 Explanation on this Section of the Manual

This section helps in discovering the cause of a fault and remedying it.

This section lists the causes of faults and gives information about remedying them.

When a fault is displayed on the machine with an error code or in the case of faults which cannot be recognized by the machine.

9.8 UNclean

9.8.1 Malfunction

Code	Designation reaction/ consequences	Cause	Remedy
300	Consequences: Starting/ stopping time limit exceeded	Spiked roll speed not reached	Check the running behavior of the spiked roll.

Code	Designation reaction/ consequences	Cause	Remedy
400	Consequences:	No message from a safety element.	Emergency unlock mechanism of the door guard locking at position "Open". Check the switching contact. Check the safety circuit. Replace relays K11, K12, K20.
		Defective wiring	Check the wiring.
401	Consequences: Safety relay, K11/K12/K20	No message from a safety element.	Emergency unlock mechanism of the door guard locking at position "Open". Check the switching contact. Check the safety circuit. Replace relays K11, K12, K20.
		Defective wiring	Check the wiring.
402	Consequences: Safety circuit interrupted, S1/S2/S10	No message from a safety element.	Emergency unlock mechanism of the door guard locking at position "Open". Check the switching contact. Check the safety circuit. Replace relays K11, K12, K20.
		Defective wiring	Check the wiring.
403	Consequences: Error at system test SX, XX	System test stops at step (S3, HX), hardware module X wrong	Check hardware type and function of module X.
		System test stops at step (S4, Bx), BO battery is missing	Replace battery.
404	Consequences: Hardware fault Axx	Module Axx is faulty	Plug-in module Axx. Replace module Axx.
406	Consequences: Time limit exceeded, waste disposal, B2	No vacuum – waste disposal	Check vacuum interval of UNlcontrol.
		Vacuum sensor defective	Check the function of the sensor. Check the wiring.
500	Consequences: EMERGENCY STOP, S10	EMERGENCY STOP button has been activated	Reset EMERGENCY STOP button by turning it clockwise.

Code	Designation reaction/ consequences	Cause	Remedy
		EMERGENCY STOP button is defective	Check the EMERGENCY STOP button, replace if necessary.
		Defective wiring	Check the wiring.
501	Consequences: Front door open, S1	The door is open	Close the door.
		The limit switch is set incorrectly or is defective.	Correct the setting of the limit switch or replace it.
		Input on the control unit is faulty	Check input signal in the screen "I/O overview".
		Defective wiring	Check the wiring.
502	Consequences: Rear door open, S2	The door is open	Close the door.
		The limit switch is set incorrectly or is defective.	Correct the setting of the limit switch or replace it.
		Input on the control unit is faulty	Check input signal in the screen "I/O overview".
		Defective wiring	Check the wiring.
503	Consequences: Plug monitor, discharge roll	The plug for the discharge roll is not plugged in	Insert plug.
		Plug of the discharge roll is defective	Inspect the connector.
		Defective wiring	Check the wiring.
504	Consequences: Exhaust air monitoring	Connections to waste air fan are faulty. The UNiclean does not start the waste air fan.	Check the connections. Check the waste air fan. Check the connections in the UNiclean.
505	Consequences: M11 potentiometer supply interrupted	Potentiometer voltage supply interrupted	Check wiring and potentiometer.
506	Consequences: Short-circuit, potentiometer, M11	Short circuit in the voltage supply of the potentiometer	Check wiring and potentiometer.
507	Consequences: M12 potentiometer supply interrupted	Potentiometer voltage supply interrupted	Check wiring and potentiometer.
508	Consequences: Short-circuit, potentiometer, M12	Short circuit in the voltage supply of the potentiometer	Check wiring and potentiometer.

Code	Designation reaction/ consequences	Cause	Remedy
509	Consequences: Motor protection switch – discharge roll Q2	Motor protection switch has been triggered	Reactivate the motor protection switch. Check roll and motor for free running.
		Motor protection switch is set incorrectly	Set the motor protection switch correctly (value from the electrical circuit diagram)
		Defective wiring	Check the wiring.
511	Consequences: Spiked roll, motor protection switch Q1	Motor protection switch has been triggered	Reactivate the motor protection switch. Check roll and motor for free running.
		Motor protection switch is set incorrectly	Set the motor protection switch correctly (value from the electrical circuit diagram)
		Defective wiring	Check the wiring.
512	Consequences: Speed, spiked roll B1	An incorrect speed was detected during starting, stopping or in operation.	Check proximity switch, replace if necessary.
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
		Defective wiring	Check the wiring.
520	Consequences: Initialization fault, U1	No communication with frequency converter, parameters cannot be loaded	Frequency converter has no voltage supply, the CAN bus is interrupted or the frequency converter is defective.
521	Consequences: Excess temperature M1	Motor cooling fins clogged	Clean the cooling fins.
		Defective wiring	Check the wiring.
522	Consequences: Excess temperature, frequency converter U1	Frequency converter cooling fins clogged	Clean the cooling fins.
523	Consequences: FC intermediate circuit voltage is too high U1	Intermediate circuit voltage is too high	Check the nominal voltage.

Code	Designation reaction/ consequences	Cause	Remedy
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
524	Consequences: FC intermediate circuit voltage is too low U1	Intermediate circuit voltage is too low	Check the nominal voltage.
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
525	Consequences: Overcurrent frequency converter U1	Cooling fins clogged, motor defective.	Clean motor and cooling fins, replace motor, if necessary.
		Frequency converter is overloaded	Inspect and clean the drives. Wait for the temperature to drop. Thermal switch closes again. Replace motor if necessary.
526	Consequences: Overload frequency converter U1	Cooling fins clogged, motor defective.	Clean motor and cooling fins, replace motor, if necessary.
		Frequency converter is overloaded	Inspect and clean the drives. Wait for the temperature to drop. Thermal switch closes again. Replace motor if necessary.
527	Consequences: FC communication interrupted U1	Serial communication between frequency converter and controller is not OK.	Check the communication to the converter. Check the frequency converter and relay for enable of the frequency converter.
		CAN bus is faulty	Check CAN bus. Check the frequency converter and relay for enable of the frequency converter.

Code	Designation reaction/ consequences	Cause	Remedy
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
528	Consequences: Fault at U1 frequency converter	Fault of the shunt on the frequency converter	Check the shunt and connections. Switch the main switch off and then on again.
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
529	Consequences: Fault at U1 frequency converter	A fault has occurred in the frequency converter.	Switch the machine off and on again. Check the connections.
		Frequency converter defective	Check frequency converter, replace frequency converter if necessary.
530	Consequences: External fault frequency converter U1	Software error	Contact RIETER Service.
531	Consequences: General fault frequency converter U1	Software error	Contact RIETER Service.

9.8.2 Warning

Code	Designation	Cause	Remedy
5205	Consequences: Ethernet to UNIcontrol interrupted	No data is received from the system controller, wiring is faulty.	Check communication between system controller and machine.
		Defective wiring	Check the wiring.
5206	Consequences: Hardware NOK for UNIcontrol signals	The machine does not have any hardware for digital communication to the UNIcontrol or hardware is defective.	Add IO card. Replace IO card
		Defective wiring	Check the wiring.

Code	Designation	Cause	Remedy
5300	Consequences: UNControl assortment not configured	No parameters from system control available for target assortment.	On the UNControl, preselect a configured assortment or configure assortment on UNClean.
5400	Consequences: Safety test in maintenance position	Input signal – door safety switch and EMERGENCY STOP do NOT agree.	Check the wiring. Door safety switch is defective. EMERGENCY STOP defective.
		Door front or rear still open, or EMERGENCY STOP activated.	Close door. Reset EMERGENCY STOP.
5401	Consequences: Emergency mode, active	Emergency mode configured	Change configuration.
5402	Consequences: Time limit exceeded, waste disposal, B2	No vacuum – waste disposal	Check vacuum interval of UNControl.
		Vacuum sensor defective	Check the function of the sensor. Check the wiring.
5403	Consequences: Waste control system, manual	The waste disposal manual. The discharge roll only rotates if you press the discharge roll key.	Set waste disposal on "Interval" or "Permanent".
5404	Consequences: Waste control system, deactivated	The discharge roll was switched off for waste measurements.	Set waste disposal on "Interval" or "Permanent".
5500	Consequences: Movement/measurement/ electrical cylinder front M11, XX	The corresponding electric cylinder has not reached the position.	Check electric cylinder, replace if necessary. Check the connections.
5501	Consequences: Movement/measurement/ electrical cylinder rear M12, XX	The corresponding electric cylinder has not reached the position.	Check electric cylinder, replace if necessary. Check the connections.
5502	Consequences: Speed, spiked roll B1	The spiked roll is clogged. Clean the spiked roll.	The spiked roll is clogged. Clean the spiked roll.

Code	Designation	Cause	Remedy
		Proximity switch is not set.	Proximity switch is not set.
		Frequency converter defective.	Check frequency converter, replace frequency converter if necessary.

9.8.3 Maintenance Warning

Code	Designation Reaction/consequences	Cause	Remedy
7400	Consequences: Replace PLC battery A10	The battery voltage has insufficient voltage or is missing	Replace battery.
7401	Consequences: Time delay – EMERGENCY STOP	Time delay incorrectly set on the relay, relay is defective	Check the settings. Check relay.

9.8.4 Message

Code	Designation Reaction/consequences	Cause	Remedy
8000	Consequences: Automatic mode activated	Automatic mode active	No action
8001	Consequences: Service mode activated	Service mode active	No action
8002	Consequences: Switch-on procedure	Machine is being initialised	No action
8003	Consequences: Machine ready to start	Machine can be started	No action
8004	Consequences: Start procedure	Machine starting	No action
8005	Consequences: Production on	Production on	No action
8006	Consequences: Stop procedure	Machine stopping	No action

Code	Designation Reaction/consequences	Cause	Remedy
8007	Consequences: Blow-room stop	Stop command from system control	No action
8008	Consequences: Fault	A fault is pending	No action
8009	Consequences: Operator STOP	Operator has pressed STOP	No action
8021	Consequences: Electric cylinder distance measurement	Electric cylinder distance measurement executed	No action
8027	Consequences: Frequency converter is being initialised	Frequency converter is being initialised	No action
8028	Consequences: Continuous test active	Continuous test active	No action

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10 Maintenance

This chapter contains the information about the maintenance of the machine.

10.1 Cleaning Table by Cycle

Target group	Cleaning cycle	Additional information	
Maintenance Personnel	Cleaning each 660 h	10.9.1	Cleaning the Grating and Discharge Roll
		10.9.2	Cleaning the Cylinder Interior, Grating Adjustment, Air Line to Differential Pressure Switch
		10.9.3	Cleaning the Cooling Fins of the Converter
	Cleaning each 2 000 h	10.9.5	Clean the Housing of the Frequency Converter

10.2 Lubrication Table by Cycle

Target group	Lubrication cycle	Additional information	
Maintenance Personnel	Lubrication each 2 000 h	10.10.1	Lubricating Chain of Discharge Roll
	Lubrication each 4 000 h	10.10.2	Lubricating the Cylinder
	Lubrication each 32 000 h	10.10.3	Changing the Gear Motor Grease

10.3 Inspection Table by Cycle

Target group	Inspection cycle	Additional information	
Maintenance Personnel	Inspection each 4 000 h	10.11.1	Discharge Roll, Check Seals on the Facing Side
		10.11.2	Inspect the Double Tines
		10.11.3	Replacing the Perforated Plate for Dust Separation

10.4 Maintenance Personnel

Only the Rieter-approved personnel are permitted to do the maintenance work at the machine.

10.5 General Information

Make sure that only approved personnel do the maintenance works.

The maintenance works contain cleaning tasks, lubrication tasks, and inspection tasks.

The intervals shown below are guide values.

Interval Specification	Duration in 3-shift Operation
165 operating hours	1 week
330 operating hours	2 weeks
660 operating hours	4 weeks
2 000 operating hours	3 months
4 000 operating hours	6 months
8 000 operating hours	1 year

10.6 Maintenance Overview

This section contains the information about the necessary tools and the necessary lubrication materials that are used during the maintenance work.

10.7 Maintenance Schedule

This section has the information about the maintenance work that is necessary to do in different maintenance intervals.

10.8 Maintenance Tasks

The standard conditions that follow have effects on the schedule of cleaning:

- Air quality
- Humidity
- Temperature

You can decrease the time interval if your conditions are not standard.

10.9 Cleaning Tasks

This chapter contains the information about the cleaning tasks of the machine.

10.9.1 Cleaning the Grating and Discharge Roll

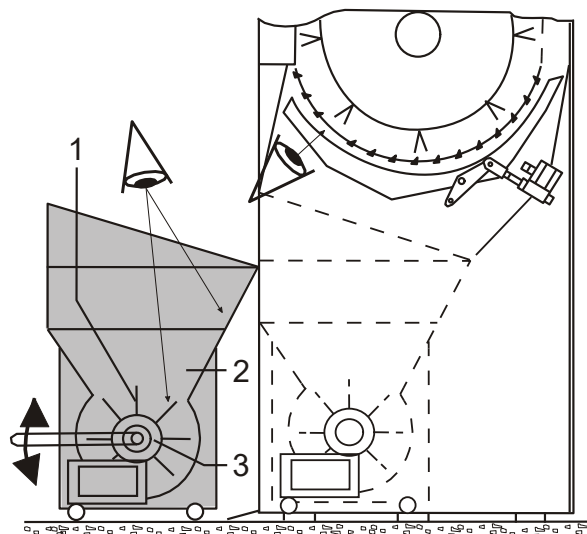


Figure 133: Cleaning the grating and discharge roll

1. Set the main switch to the "OFF" position and secure with a lock.
2. Pull out plug.
3. Extend out the waste trough **2** and turn the discharge roll **3** by hand.
4. Check the sealing strips **1** for wear.
5. Replace any defective sealing strips.
6. Check the side walls. Clean as needed.
7. Check the grating accumulation of fibres. Clean as needed.

10.9.2 Cleaning the Cylinder Interior, Grating Adjustment, Air Line to Differential Pressure Switch

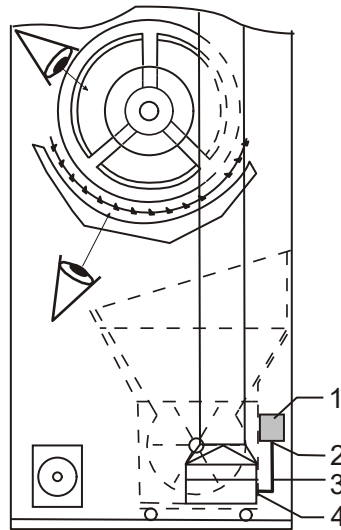


Figure 134: Cleaning the cylinder interior

1. Set the main switch to the "OFF" position and secure with a lock.
2. Clean the drum interior and the grating adjustment element with a vacuum cleaner.
3. Inspect the air line **3** at connection **4** for clogging.
4. Loosen the connection **2** on the differential pressure switch **1**.
5. Blow through the air line from the connection **2** towards **4**. Never blow into the differential pressure switch with compressed air.

10.9.3 Cleaning the Cooling Fins of the Converter

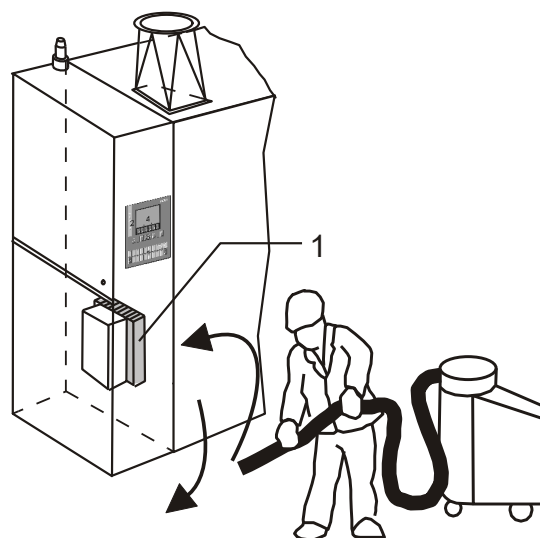


Figure 135: Cleaning the cooling fins of the converter

1. Set the main switch to the "OFF" position and secure with a lock.
2. Clean the cooling fins **1** with a vacuum cleaner.

10.9.4 Frequency converter

10.9.5 Clean the Housing of the Frequency Converter

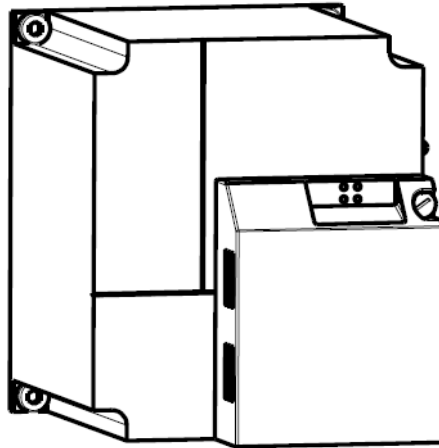


Figure 136: Clean the housing of the frequency converter



DANGER

Non-adherence to discharge time!

Risk of death or severe injury

- ▶ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit.

1. Clean the surface of the housing with a vacuum cleaner.

10.10 Lubrication Tasks

This chapter contains the information about the lubrication tasks of the machine.



CAUTION

Incorrect storage and incorrect handling of the lubricants!

Irritation or burns to skin, eyes, or respiratory tract

Risk of slipping when spilled

- ▶ Read the safety data sheet.
- ▶ Use safety gloves and safety goggles.
- ▶ Do NOT touch hot lubricants.
- ▶ Clean up the spillage.

10.10.1 Lubricating Chain of Discharge Roll

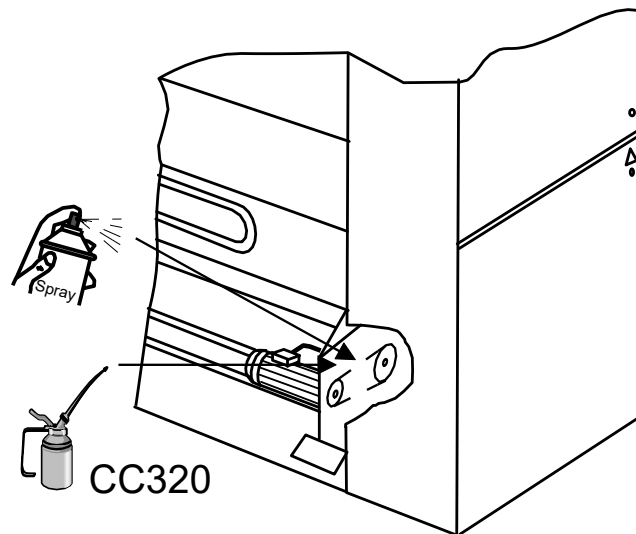


Figure 137: Lubricating chain of discharge roll

1. Lubricate the chain.
2. Lubricate lightly with brush or chain spray.
 - EP oil CLP 220
 - Oil ISO VG 220

10.10.2 Lubricating the Cylinder

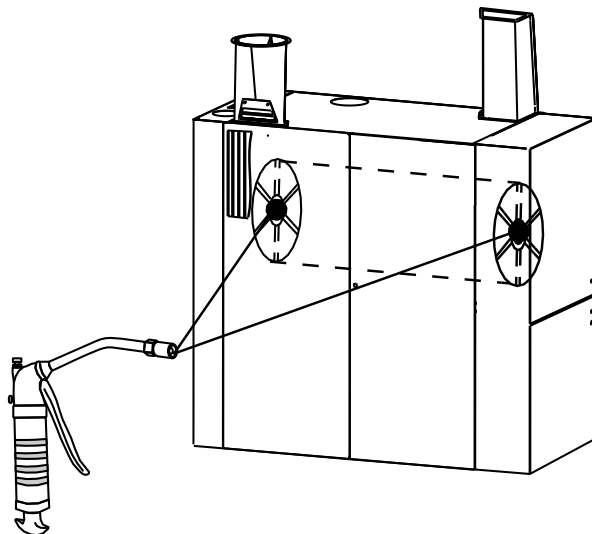


Figure 138: Lubricating the cylinder

1. Lubricate the bearings on both sides of the machine.
 - 2 - 3 strokes of the pump
 - EP 2
 - NLGI 2 grease

10.10.3 Changing the Gear Motor Grease

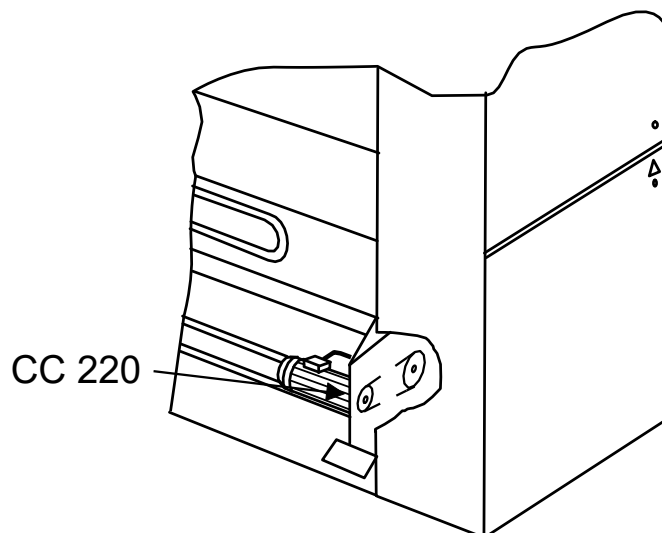


Figure 139: Changing the gear motor grease

1. Change the gear motor grease.
 - Quantity: 330 cm³
 - EP oil CLP 220

– Oil ISO VG 220

10.11 Inspection Tasks

This chapter contains the information about the inspection tasks of the machine.

10.11.1 Discharge Roll, Check Seals on the Facing Side

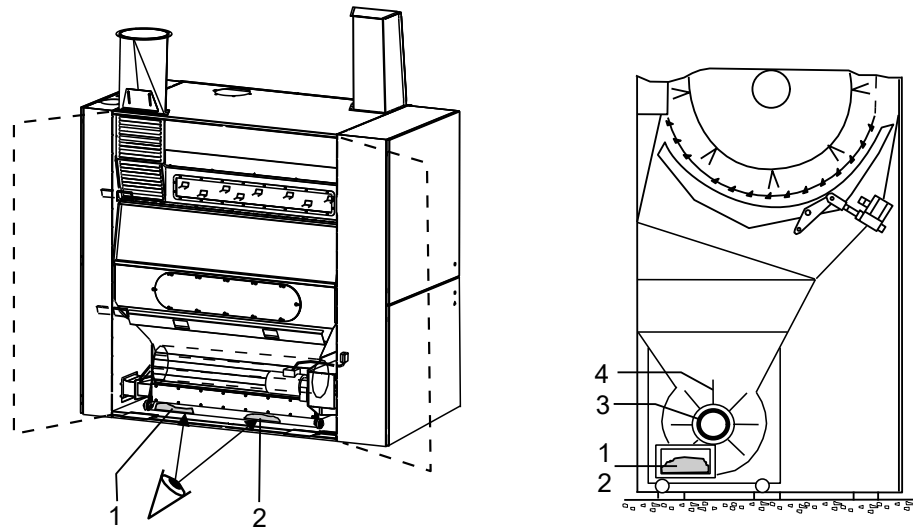


Figure 140: Discharge roll

Prerequisites Make sure that the criteria are obeyed:

- ✓ Execute the check between two extraction intervals. If accumulations of waste are discovered at points **1** and **2** during this time, comply with the following:
 1. Check the face side seals **3**.
 2. Check the sealing strips **4**.
 3. Check the running time of the discharge roll.

10.11.2 Inspect the Double Tines

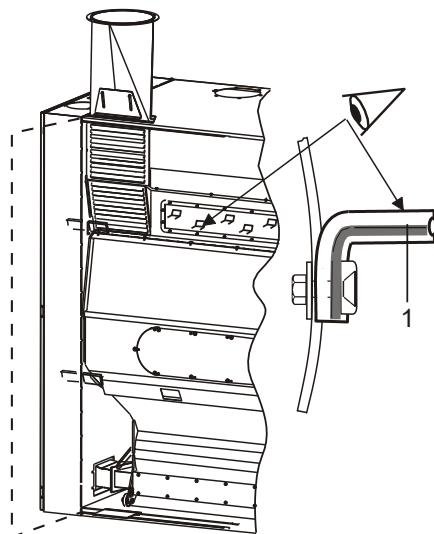


Figure 141: Inspect the double tines

1. Set the main switch to the "off" position and secure with a lock.
2. Replace bent or worn tines **1**.
3. Install only original double tines (special raw material).

10.11.3 Replacing the Perforated Plate for Dust Separation

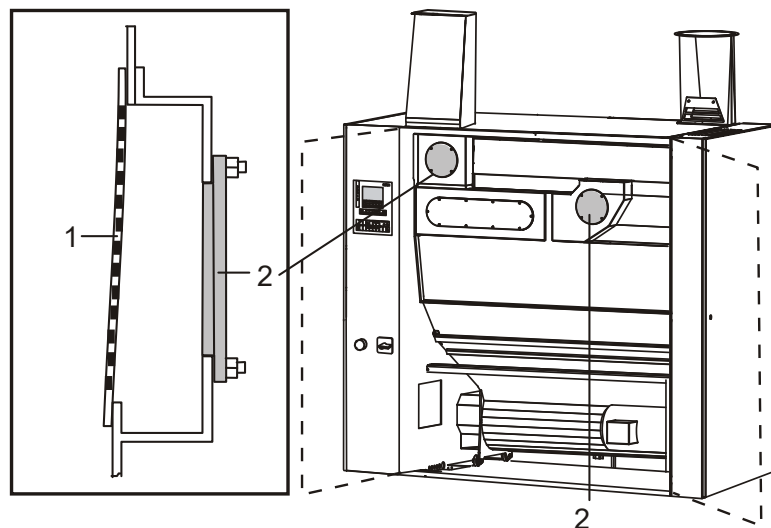


Figure 142: Replacing the perforated plate for dust separation

1. Check the perforated plate **1** for damage, such as bulges, or abraded points.
2. Replace any defective perforated plates.
3. Replace damaged windows **2**.

10.12 Safety precautions

10.12.1 Safety Precautions during Cleaning Work

Safety precautions

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

Inflammable fuel

If inflammable cleaning agents are used in the spinning mill, their flash point should be above 55°C.

10.12.2 Safety Precautions during Lubrication

Remove any drops of oil and other lubricants on the floor immediately to prevent all risk of slipping and falling.

10.13 Explanations for Maintenance and Intervals

Maintenance necessity

Periodic maintenance is a prerequisite for long life time.

Periodic maintenance avoids unnecessary down time.

Maintenance targets

To keep equipment in good conditions with a minimum of problems.

To avoid interruptions by preventing measures.

Pay backs of organised maintenance.

Maintenance may be scheduled and labour requirements anticipated.

Not sufficient maintenance or poorly organised maintenance:

Problems will arise at any time, avoidable loss of production will be encountered.

Correct cleaning procedures

Cleaning must be done in a timely manner and at the right place.

Correct lubrication procedures

Lubrication procedures must be done in a timely manner with proper lubricant at the right place and in the right amount.

To be able to lubricate properly it is necessary to have good equipment and exact operational scheduling.

Preparations require that machines and equipment are in appropriate conditions.

Personnel must be trained and familiar with the task on hand.

Adapt maintenance schedules to operating conditions

Maintenance schedules depend upon material, trash content, air condition, and operating conditions.

The recommended maintenance schedules are mere proposals to be changed according to local conditions.

Intervals

There are intervals which are valid either only once or at cyclical intervals

The unique ones are only to be used after the first installation and start-up. This can apply to the whole machine or to an individual element. For example, should a newly fitted belt needed to be re-stretched after a certain running time.

Cyclical tasks must be performed repeatedly.

For example, after a running time of 660 hours, the 165, the 330 and the 660 maintenance work must be carried out.

In 3 shift operation, the following intervals correspond to the quoted times.

165 operating hours = 1 week

330 operating hours = 2 weeks

660 operating hours = 4 weeks

2000 operating hours = 3 months

4000 operating hours = 6 months

8000 operating hours = 12 months

Maintenance planning

The maintenance schedule serves as overview for this.

The maintenance schedule is given in tabular form and lists the intervals at which the different maintenance work is required.

The maintenance plan permits a detailed customer-specific maintenance schedule to be drawn up.

The work description is referenced for each piece of maintenance work.

For service specialists who carry this work out on a routine basis, this need to refer to a work description is no longer necessary.

The tabulated column "Values" gives the service specialist details of the lubrication points.

The tabulated column "Values" contains a summary of the most important data on the corresponding lubrication points.

1. Location designation of the lubrication points.
2. Number of lubrication points, for example the number of lubricating nipples = 8.
3. Lubricant information, e.g. EP2.
4. Lubricant type, e.g. "grease".

5. Lubricant quantity, e.g. 3 pump strokes per lubricating nipple.

10.14 Cleaning / Lubrication

Purpose of cleaning

Regular maintenance and constant cleaning of the machine contribute towards trouble-free operation.

Use of cleaning agents

Natural residue from cotton, such as honeydew, is best cleaned off with a cleaning rag and hand-warm water.

Residue from lubricants and deposits from synthetic fiber material are best cleaned with a solvent that does not attack rubber and paint. e.g. use cleaning alcohol or water with a grease-dissolving general-purpose cleaner

Use a high-powered industrial vacuum cleaner to remove dust and fly. The suction nozzle must be fitted with a plastic tip.

After cleaning, the least volatile cleaning agents such as kerosine, white spirit, must be blown out of the antifriction bearings, using clean compressed air and without rotating the bearing.

Caution

Unauthorised conversions or modifications are not allowed, as there is then no guarantee that the machine will function correctly.

10.14.1 UNiclean

10.15 Lubricant Manufacturer

Lubricant	Manufacturer	Name
CC320	AGIP	BLASIA 320
	AVIA	AVIA GEAR RSX 320
	BP	ENERGOL GR.XP 320
	CASTROL	ALPHA SP 320
	ExxonMOBIL	MOBIGEAR 600 XP 320
	KLÜBER	KLÜBEROIL GEM 1 -320N
	OPTIMOL	OPTIGEAR BM 320
	PETRO CANADA	ENDURATEX EP 320
	SHELL	OMALA S2 G 320
	TEXACO	MEROPA 320
	VALVOLINE	EPG 320
CC220	AGIP	BLASIA 220

Lubricant	Manufacturer	Name
	AVIA	AVIA GEAR RSX 220
	BP	ENERGOL GR-XP 220
	CASTROL	ALPHA SP 220
	ExxonMOBIL	MOBILGEAR 600 XP 220
	KLÜBER	KLÜBEROIL GEM 1 -220N
	OPTIMOL	OPTIGEAR BM 220
	PETRO CANADA	ENDURATEX EP 220
	SHELL	OMALA S2 G 220
	TEXACO	MEROPA 220
	VALVOLINE	EPG 220
EP 2	AGIP	GR MU EP 2
	AVIA	AVIALITH 2 EP
	BP	ENERGREASE LS EP-2
	CASTROL	SPHEEROL EPL 2
	ExxonMOBIL	MOBILUX EP2
	KLÜBER	MICROLUBE GBU-Y 131
	LAGERMEISTER	LAGERMEISTER TS
	OPTIMOL	LONGTIME PD2
	PETRO CANADA	PRECISION GENERAL PURPOSE EP 2
	SHELL	Gadus S2 V220 2
	TEXACO	MULTIFAK EP2
	VALVOLINE	MULTIPLEX SG - 2

10.16 Standard Lubricant

Code	Designation	viscosity	DIN	ISO	Description
CC320	EP oil, heavy	ISO viscosity mm ² /s 40 °C 320	CLP 320 (51517/3)	CC320	Paraffin base oil, VI > 90. Little or no swelling of Orings or other synthetic rubber gaskets. Not aggressive to bronze. Good load-bearing ability; FZGTest Load class 12. Extreme pressure additives on basis of phosphorus sulphur or equivalent EP additives.

Code	Designation	viscosity	DIN	ISO	Description
CC220	EP oil	ISO viscosity mm ² /s 40 °C 220	CLP 220 (51517/3)	CC220	Paraffin base oil, VI > 90. Little or no swelling of Orings or other synthetic rubber gaskets. Not aggressive to bronze. Good load-bearing ability; FZG Test Load class 12. Extreme pressure additives on basis of phosphorus sulphur or equivalent EP additives.
EP 2	Grease	Viscosity of the basic oil 100-250	KP2G-20 (51825)		EP-Lubricant, lithium-base or equivalent penetration; 260 -310, NLGI-class 2. High load additives phosphor-sulphur-based or equivalent EP additives. Ageing-protection and anti-rust additives. Not aggressive to bronze.

10.17 Lubrication Points

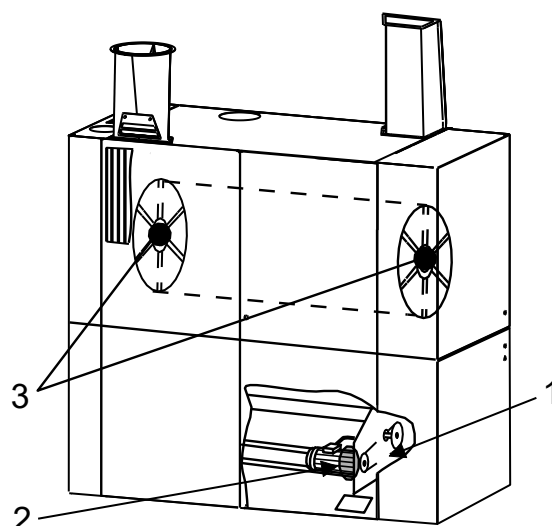


Figure 143: Lubrication points

Location number	Place	Number	Medium	Quantity	Special tools
1	Chain	1	CC320	Lubricate lightly with brush or chain spray.	--
2	Stripper roller gearbox	1	CC220	330 cm ³	--
3	Cylinder	2	EP 2	2 – 3 strokes of the pump	--

11 Repair

This chapter contains the information about how to repair the defective machine parts.

11.1 General Information

Make sure that only approved personnel do the repair work.

During the repair work, the approved personnel replace machine parts that do not work correctly. The repair work makes sure that the machine is malfunction-free in the production.

11.2 Repair Work

This chapter contains the information about the repair work of the machine.

11.3 Cleaning Point

11.3.1 Grid

11.3.1.1 Remove Grating Bars

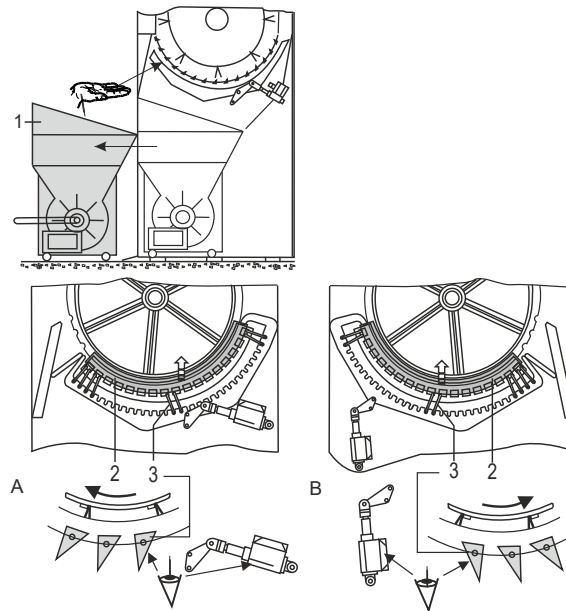


Figure 144: Remove grating bars

Prerequisites Make sure that the criteria are obeyed:

- ✓ Two persons are required to install the grating bars. One person is inside the machine to guide the grating bars **3**.
- 1. Set the main switch to the "OFF" position and secure with a lock.

Pull out the waste trough / open the flap

Pull out the Waste Trough / Open the Flap ▶ 82

1. Loosen the cover template **2** and slide it upwards.
2. Turn the grating bars **3** slightly and pull outwards. The person inside the machine has to guide the grating bars during the process.
3. Do NOT swap out the grating bars of the grating half (**A**, looking at the electrical system cabinet) and the grating half (**B**, looking at the drive).

11.3.1.2 Installing the Grating Bars

Prerequisites Make sure that the criteria are obeyed:

- ✓ Two persons are required to install the grating bars. One person needs to be positioned inside the machine to guide the grating bars.
1. Set the main switch to the "off" position and secure with a lock.
 2. Installation is performed using the same sequence, but in reverse order.

11.3.1.3 Electric Cylinder for the Grating Setting

Optimise waste volume ▶ 58

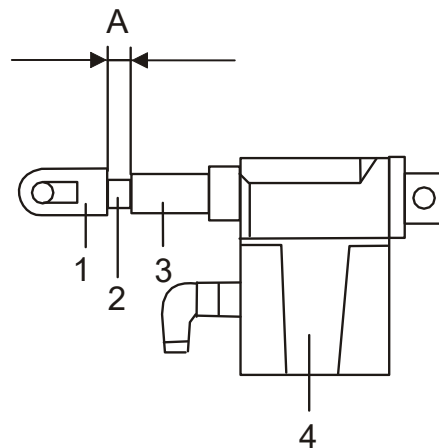


Figure 145: Electric cylinder for the grating setting

1. After replacing the electric cylinder adjust the lifting rod so that it does not move to the limit stop.

Connecting Rod

A	7 – 10 mm
---	-----------

1. Rotate the lifting rod **2** until the value **A** is reached.

11.3.1.4 Grid Adjustment

11.3.1.4.1 Description

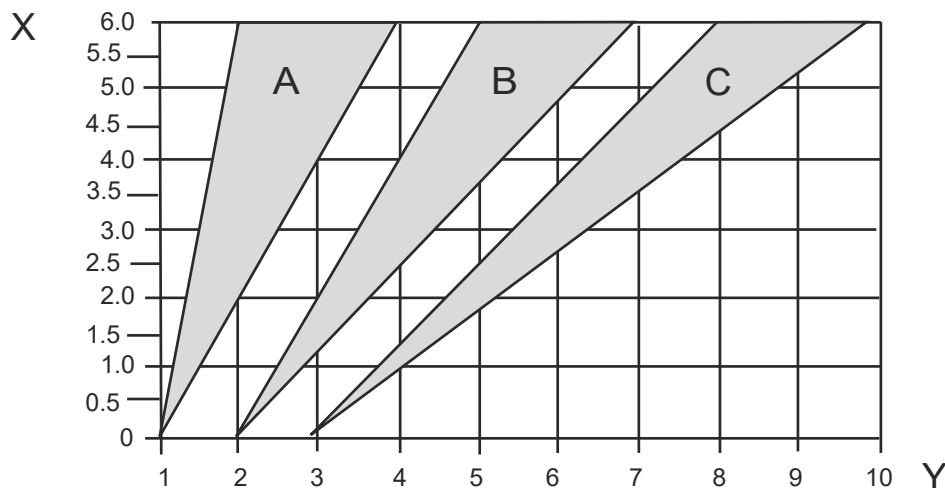


Figure 146: Description_1

Y Relative waste volume

X Dirt content in % of the cotton

The combined effect of cleaning intensity and waste volume can lead to a high degree of cleaning.

The raw material (impurity content, ease of cleaning) and the final product (yarn) are decisive factors here.

Method of operation

- Material for recycling: recycled blow-room/card waste or other waste.

Case A

Only raw cotton is processed in this plant. The waste produced is not processed further in-house (e.g. it is sold). The waste volume is kept low in an effort to keep fibre loss to a minimum. However, it has to be ensured that the cleaning effect is adequate.

Example: Impurity content: 3%, setting: 2

Case B

In this example, there are two blow-room lines. Assortments 1 and 2. No recycling material is added to assortment

1. The waste produced by assortment 1 is added to assortment 2 within the plant. As there is no actual loss, the relative waste volume setting can be increased.

Example: Impurity content: 3%, setting: 4

Case C

The raw cotton recycling material is added to assortment 2 on the blow room line. For this reason alone, the impurity content will also be higher. A high setting for the relative waste volume is therefore made.

Example: Impurity content: 5%, setting: 8

Method of operation

- Cleaning characteristic

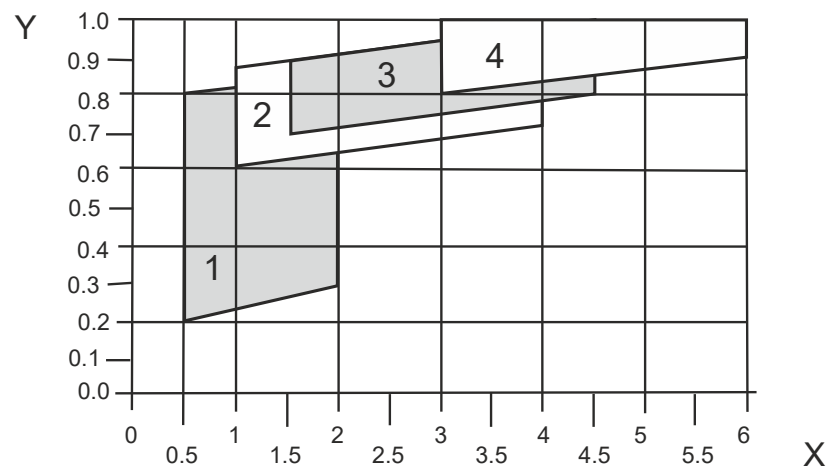


Figure 147: Description_2

Method of operation

- Dependent on final product (yarn)
- 1 ring-spun yarn combed, finer than Nm 80 (Ne 45; tex12.5)
- 2 ring-spun yarn carded, up to Nm 80 (Ne 45; tex 12.5)
- 4 OE yarn carded or combed, finer than Nm 35 (Ne 20; tex 28)
- 3 OE yarn carded or combed, up to Nm 35 (Ne 20; tex 28)

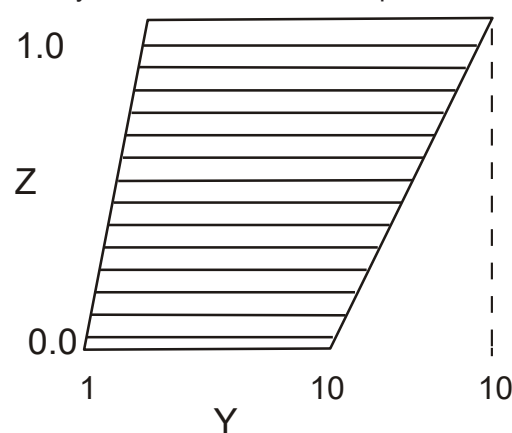


Figure 148: Description_3

Z Relative cleaning intensity

Y Relative waste volume

Working range

11.3.2 Cylinder

11.3.2.1 Remove the Bearing Journals

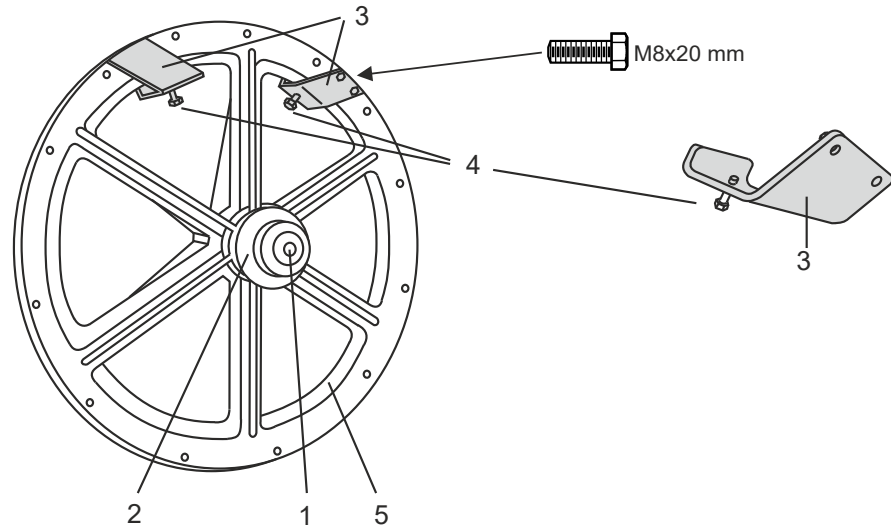


Figure 149: Remove the bearing journals_1

1. Set the main switch to the "OFF" position and secure with a lock.
2. Remove the V-belt pulley from the hub **2**.

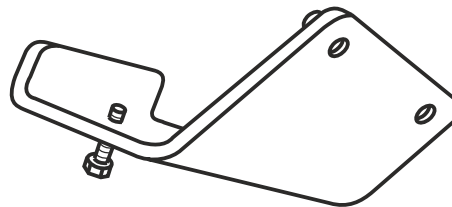


Figure 150: Remove the bearing journals_2

The hook is the tool for removal of the cylinder.

1. Mount the hooks **3** and tighten the screws **4** so that resting fully on the rim **5**.
 ⇒ The position of the cylinder can be adjusted with the bolts **4**.
2. Adjust the bore of the cylinder so that the bearing journals **1** can be taken out. It should be possible to install the bearing journals again without a great deal of force. The critical points are the tensioning elements **8**.
3. Unscrew the bolts **6** on the bearing cover.
4. Loosen the central bolt **1** unscrew it 1 to 3 mm.

5. Tap the bolts central screw lightly to loosen the tensioning elements **7**, **8**, **9**.
6. Pull out bearing journals.

11.3.2.2 Install the Bearing Journals

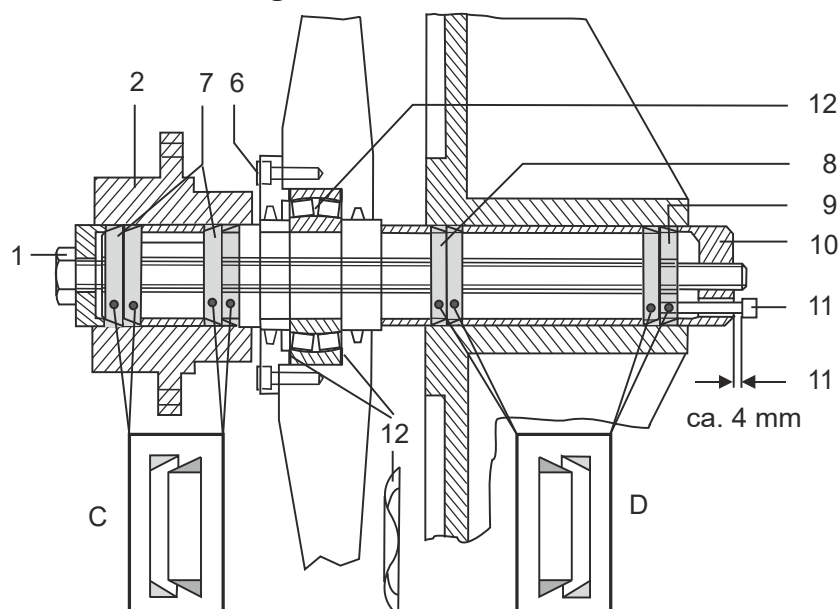


Figure 151: Install the bearing journals_1

1. Set the main switch to the "OFF" position and secure with a lock.
2. If the tensioning elements **7**, **8**, **9** are replaced, pay attention to the position. (See **C** and **D**).
3. Do NOT use installation paste or grease during installation of the tensioning elements. Only oil lightly with oil EP 2 **12**.
 - ⇒ The lock screw **11** is secured with Loctite, so that the pressure piece **10** does not fall out.
4. Check the shims for wear **12**.

Before the central bolt **1** is tightened, there must be an equal play between bearing cover and cylinder on both sides.

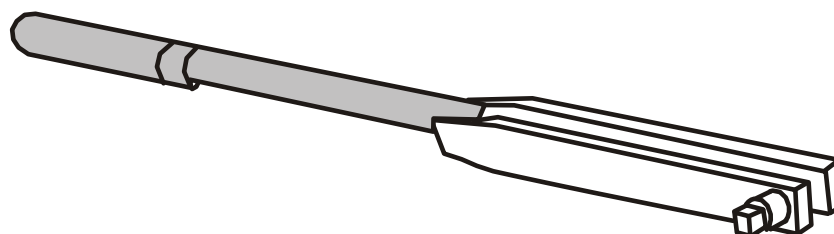


Figure 152: Install the bearing journals_2

Torque spanner for tightening bolts.

1. Tighten the central bolt **1** M24 with 130 Nm.

11.3.2.3 Double Tines

11.3.2.3.1 Install the Double Tines

1. Set the main switch to the "OFF" position and secure with a lock.
2. Use only original double tines (special raw material).
3. Degrease the bolts **1**. Treat with activator.
4. Coat the front part of the bolts **1** with Loctite 243.

Also place **5** two drops of Loctite 243 medium-strength into the welded nuts.

1. Tighten the screws M8 with 40...45 Nm.

11.3.2.4 Proximity Switch

Cylinder ▶ 58

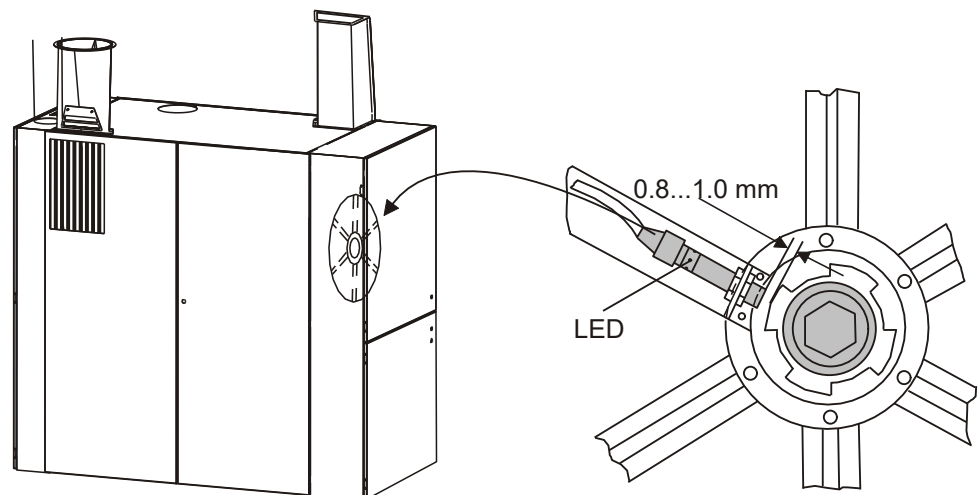


Figure 153: Proximity switch

The proximity switch is used to determine the speed of the cylinder.

Proximity switch	0.8 – 1.0 mm
------------------	--------------

1. Adjust the proximity switch with the two nuts.

Result When the proximity switch is activated, the LEDs are lit up.

11.4 Control Technique

11.4.1 Control System Battery

11.4.1.1 Change Battery of Control System

Removing battery from the controller ▶ 158

Installing battery of the controller ▶ 159

11.4.1.2 Removing Battery from the Controller

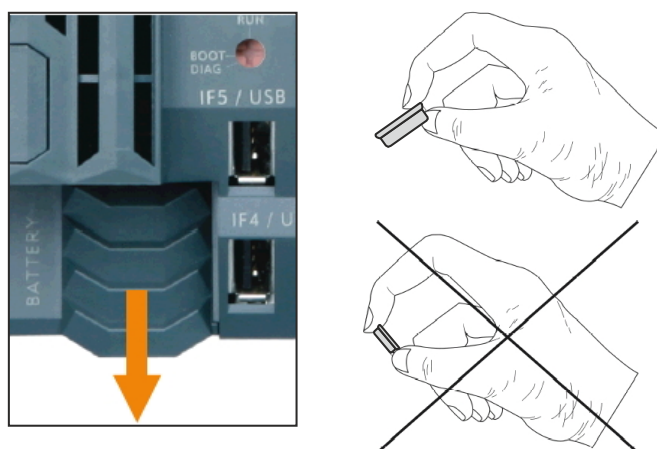


Figure 154: Removing battery from the controller

1. During a battery change in de-energized status, data (machine data, customer data) in the data memory are lost.
2. Pull away the cover.
3. Pull the battery out of the holder. In this process, do not touch the battery with nippers or uninsulated tweezers. Short-circuit hazard. Only touch the battery on the front sides with your hand.

11.4.1.3 Installing Battery of the Controller

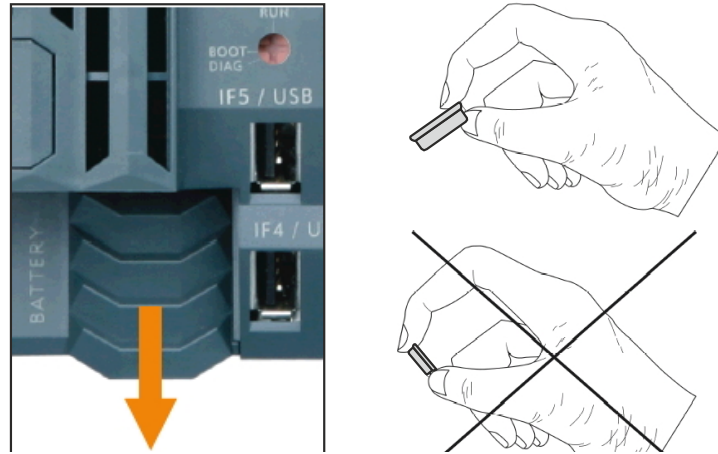


Figure 155: Installing battery of the controller

1. Execute the electrostatic discharge on the DIN rail, e.g. on the earth connection. Do not reach into the power supply.
2. To do this, do not touch the battery with nippers or uninsulated pincers. Short-circuit hazard. Only touch the batter on the front sides with your hand.
3. Insert the new battery into the right polarity. To do this, place the battery with the “+” side facing up on the right part of the battery holder below the USB interface.
4. Fix the battery in place in the holder, through pressure above the left part of the battery holder.
5. Fit the cover.
6. Lithium batteries have hazardous waste. Dispose lithium batteries as hazardous waste.

11.5 Frequency Converter

11.5.1 Replacing the Frequency Converter

Remove frequency converter ▶ 160

Install the frequency converter ▶ 162

Frequency converters are subject to a natural ageing process. Frequency converters are to be replaced at regular intervals with inspected replacement devices. This is an effective means of preventing device failure. Only authorised RIETER service personnel may service frequency converters. Contact the nearest RIETER service centre or RIETER Parts for replacement devices or inspection of the frequency converters.

11.5.2 Remove Frequency Converter



DANGER

Non-adherence to discharge time!

Risk of death or severe injury.

- ▶ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit.

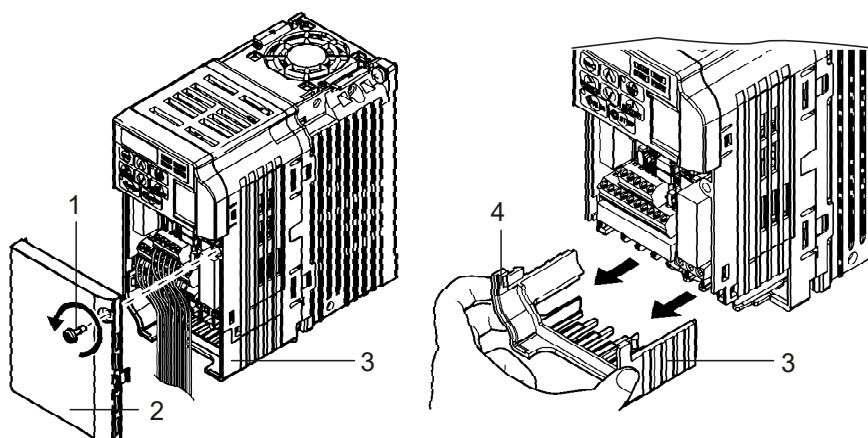


Figure 156: Removing the cover from the power unit

Removing the Cover from the Power Unit

1. The existing housing can vary from the graphic.
2. Loosen the screw **1**. Remove the cover **2**.
3. Press the latches **4** of the cover **3** together.
4. Extend the cover **3** in the direction of the arrow.

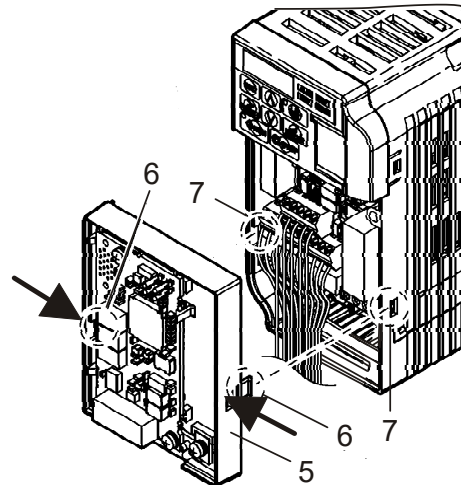


Figure 157: Removing the cover from the power unit_2

5. Gently press together the latches **6** on the module **5**. In this process, the latches in the openings **7** disengage.
6. Remove the module.

Read-off the Charge Indicator

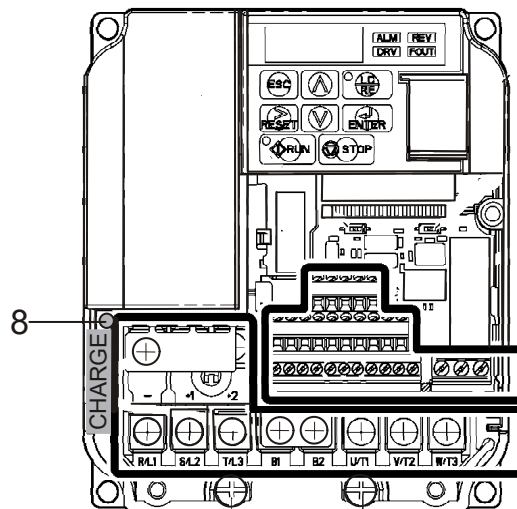


Figure 158: Read-off the charge indicator

1. Check whether or not the LED (CHARGE) lights up. The LED will be lit if the voltage for the intermediate circuit exceeds 50 VDC.
2. Wait until the (CHARGE) LED has gone out.
3. After the LED (CHARGE) has gone out, wait another 5 minutes.
4. Measure the residual voltage between the terminals with the designations (-) and (+1) (intermediate circuit). The terminals are arranged at different places of the power terminals.

5. As soon as the residual voltage for the intermediate circuit has dropped to below 30 VDC, disconnect the cables.

Disconnect Cable

1. Check the labelling of terminals and cables. Ensure that the cables can be properly connected during reinstallation.
2. Disconnect the power and control terminals.
3. Disconnect the earth cable from the earth terminal.
4. Do not pull the cables out of the cable bushings. The cable glands remain in the electrical control cabinet of the machine when the frequency converter is replaced.
5. Loosen the four fastening screws. Remove the frequency converter.

11.5.3 Install the Frequency Converter



DANGER

Non-adherence to discharge time!

Risk of death or severe injury.

- Only qualified electricians are permitted to work at the frequency converter.
- A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- Avoid contact with any live parts.
- Wait until the LED (CHARGE) is no longer lit.

Identifying the Frequency Converter

1. Make sure the correct device is available before installation.

Identifying the Frequency Converter ► 51

1. Install the device accordingly.

Loading the Frequency Converter ► 163

1. Configure the device for use with this machine.

Configuring the Frequency Converter ► 164

1. Install the device. Proceed in reverse order as followed for removal.
Connecting cables.

Connecting Cables

1. Proceed in reverse order of removal.

2. Connect the control, power and earth cables according to the cable designations. Pay attention to the electrical documentation.
3. Pay attention to the specification for the connection of the earth cable.

Loading the Frequency Converter ▶ 163

11.5.4 Loading the Frequency Converter

Replacing the frequency converter ▶ 60

The device has to be equipped according to the version.

CAN Module (SI-S3/V)

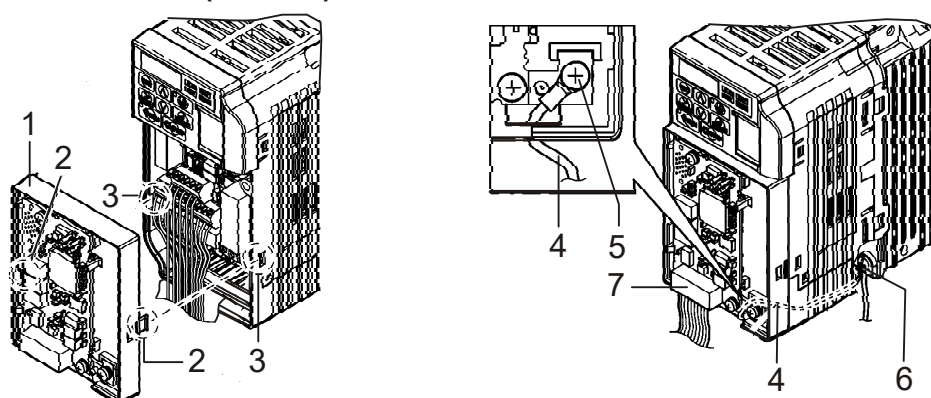


Figure 159: CAN module (SI-S3/V)

1. Gently press together the latches **1** on both sides of the module **2**.
2. Press on the module until the catches engage in the openings **3**.

Connecting the Earth Cable from the CAN Module

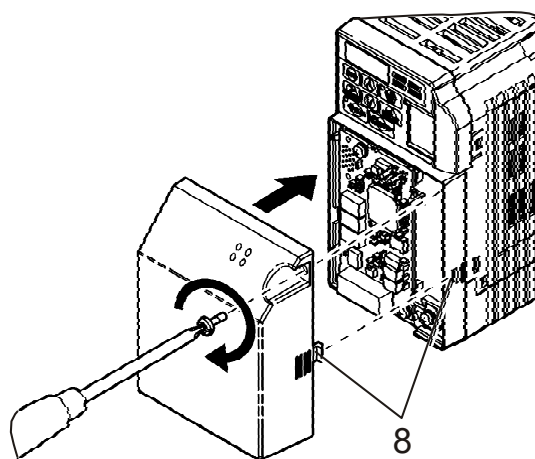


Figure 160: Connecting the earth cable from the CAN module

1. Attach the earth cable **4** to the earth terminal **5** of the CAN module. Keep the earth cable from the CAN module to the frequency converter as short as possible.
2. Fasten the earth cable to the earth terminal **6** of the frequency converter. In this process rout the earth cable in such a manner that the covers are precisely sealed.
3. Plug in the plug **7** from CAN bus.
4. Mount the cover **8**.

11.5.5 Configuring the Frequency Converter

Replacing the frequency converter ▶ 60



DANGER

Non-adherence to discharge time!

Risk of death or severe injury.

- ▶ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit.

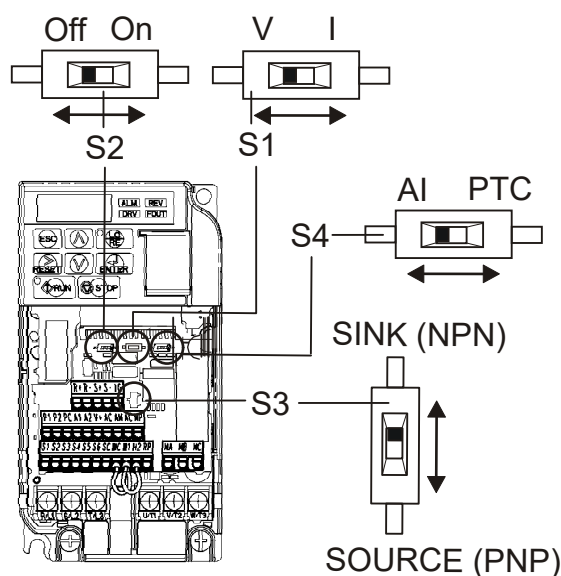


Figure 161: Configuring the frequency converter

Configure the frequency converter with the switches (**S1**...**S4**) on the control card.

Setting the S1 / S2 / S3 / S4 DIP switches

1. Set the **S1** switch.

S1 switch position

U1 frequency converter	I
------------------------	---

1. Set the **S2** switch.

S2 switch position

U1 frequency converter	ON
------------------------	----

1. Set the **S3** switch. (Digital inputs of the frequency converter.)

S3 switch position

U1 frequency converter	SINK (NPN)
------------------------	------------

1. Set the **S4** switch.

S4 switch position

U1 frequency converter	AI
------------------------	----

11.5.6 Cooling-System Adjustment*Replacing the frequency converter ► 60*

Adjust the frequency converter to the cooling system used in the machine.

Heat transfer plate

1. Use a spatula to remove old heat-transfer compound residue from the heat-transfer plates. Use solvent to remove any remaining traces of residue.
2. Check whether the transfer plates show any signs of damage. Carefully file off or grind off any local unevenness.
3. Brush in heat conducting paste uniformly, full surface on the transfer plate before installing the device.
4. Use a small paint roller to do this.

Requirements for the heat conducting paste

Composition	Silicone-free
Thermal conductivity	0.9 – 1.0 W/mK

11.5.7 Setting the T1000V Frequency Converter*Replacing the frequency converter ► 60*

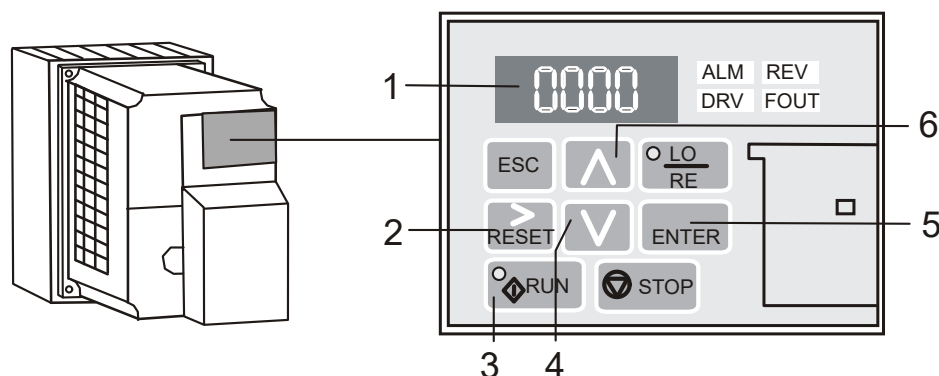


Figure 162: Setting the T1000V frequency converter

After replacement of a frequency converter, set the baud rate and node address.

Authorisation setup (for all frequency converters)

1. Energise the frequency converter to be adjusted. To do this switch on the main switch.
2. Press the keys **4** or (PAr) until the display **6** for the parameters **1** appears.
3. Confirm the selection using key **5**.

The parameter (A1-01) flashes on the display **1**.

1. Press the key **5** several times until the display changes to the parameter value.
2. With the **2** key move from one number to the next. With the keys **4** and **6** set the value ("0002").
3. Confirm the selection using key **5**.
⇒ ("END") is briefly illuminated, then the set value ("002" and then (A1-01).
The authorisation to alter the parameter is present.

Initialisation (for all frequency converters)

The authorisation is is present. (A1-02) flashes.

1. Use key **6** to increase the last digit on the display **1** to ("3").
2. Confirm the selection using key **5**.
3. Use keys **2**, **4** and **6** to enter the value ("2220").
4. Confirm the selection using key **5**.
⇒ When the initialisation is completed, (A1-03) appears again.

Set communication parameter to "Do NOT initialise"

The authorisation is present (A1-02) is flashing.

1. Use key **2** to move to the letter (A) on the display 1.
2. Use key **6** to change the letter (A) to the letter (F).
3. Use key **2** to select the parameter (F6-08).

4. Confirm the selection using key **5**.
5. Use key **2** to select the last digit.
6. Use keys **4** and **6** to enter the value ("00").
7. Confirm the selection using key **5**.

Setting the baud rate

The authorisation is present (A1-02) is flashing.

1. Use key **2** to move to the letter (A) on the display 1.
2. Use key **6** to change the letter (A) to the letter (F).
3. Use key **2** to select the parameter (F6-36).
4. Confirm the selection using key **5**.
5. Use key **2** to select the last digit.
6. With the keys **4** and **6** set the value ("4").
7. Confirm the selection using key **5**.

Setting the node address (dependent on frequency converter selected)

The authorisation is present (A1-02) is flashing.

Read off the node address of the relevant frequency converter from the electric circuit diagram.

1. Use key **2** to move to the letter (A) on the display 1.
2. Use key **6** to place the letter (A) on the letter (F).
3. Use key **2** to select the parameters (F6-35).
4. Confirm the selection using key **5**.
5. Use key **2** to select the last digit.

Result Main switch ON/OFF.

11.5.8 Normal Operation with Frequency Converter

Replacing the frequency converter ▶ 60

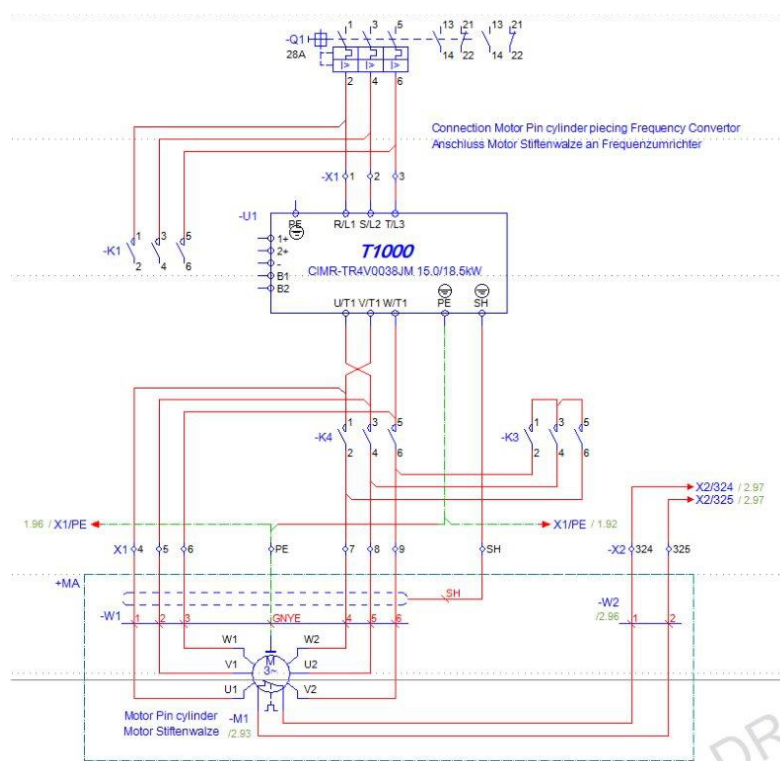


Figure 163: Normal operation with frequency converter

Except from the electrical diagram for normal operation with frequency converter.

11.5.9 Setting Emergency Operation without Frequency Converter

Replacing the frequency converter ▶ 60



DANGER

Non-adherence to discharge time!

Risk of death or severe injury

- ▶ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit.

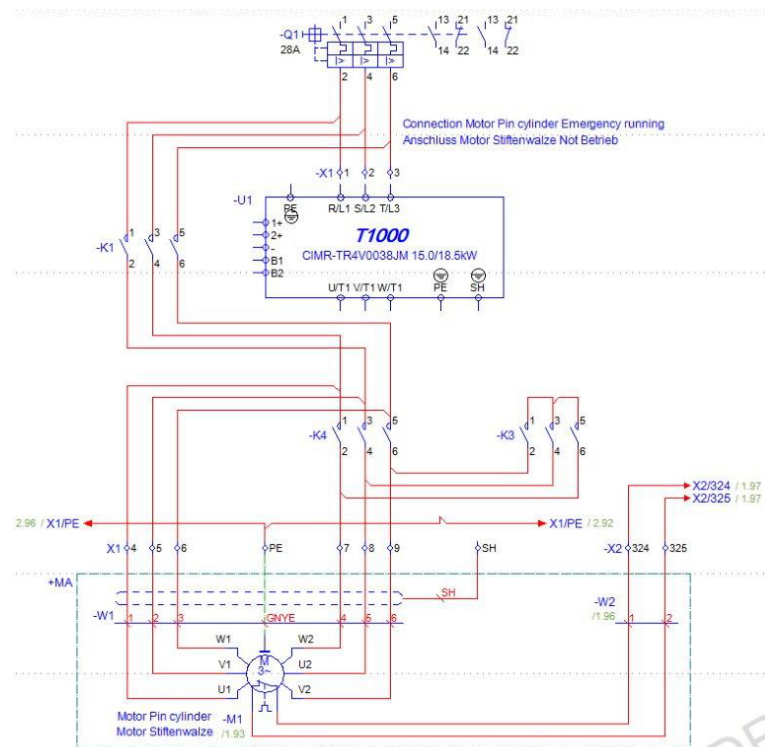


Figure 164: Setting emergency operation without frequency converter

Prerequisites Make sure that the criteria are obeyed:

- ✓ Rewire and set the machine for emergency operation in the event of a failure of the frequency converter. Proceed as follows to do this:
 1. Replace the standard belt pulley of 140 mm diameter with the supplied belt pulley of 100 mm diameter.
 2. De-energise the machine.
 3. Connect the wires of the frequency converter output to the secondary side of the contactor according to the specifications in the electrical circuit diagram. With this wiring arrangement, the power is supplied directly to the motor.
 4. In the control system navigate to the operating page "2.1 Production settings". Select the operating mode "Emergency operation".
 5. Select the settings for the production.
 6. After commissioning without material, check the direction of rotation of the motor.

11.5.10 Setting Emergency Operation without Frequency Converter on the Operating

Replacing the frequency converter ▶ 60

2.1 Settings production		7:56:50
5401 Emergency mode, active		
Operating mode	Emergency mode, Vario-Set	
Number of assortments	4	
Assortment	Relative waste volume	
1	2	
2	2	
3	2	
4	2	

Figure 165: Setting emergency operation without frequency converter on the operating page

On the operating page "2.1 Production Settings under "Operating mode" change over to "Emergency operation".

12 Decommissioning and Storage

This chapter contains the information about the decommissioning and the storage of the machine.

12.1 Decommissioning

- Put the machine into a safe state
- Disconnect the power supply.
- Protect the machine from misuse.
- Secure the machine in such a way that when it is idle there is no risk of injury to any person.
- The machine-specific regulations with regard to decommissioning must be observed.
- The machine must be suitably protected against soiling and corrosion.
- The regulations and operating procedures specific to the machine are listed in the Chapter "Decommissioning and Storage". These regulations, and particularly the safety regulations, must be adhered to most exactly.

12.2 Storage

The steps to keep the machine safe are as follows:

- To prevent from contamination or corrosion, keep the machine in a clean and dry room.
- Make sure that no unauthorized operation occurs at the machine.
- Make sure that the machine has no risks of injury to personnel.

12.3 Disassembling the Machine

Make sure that the instructions that follow are obeyed:

- The machine is disassembled and packed by the specialists.
- The machine is disassembled into units that stay in a safe status during the transport.
- Dangerous machine parts that have risks during the transport are disassembled and safely packed.

12.4 About the Operating Fluids

All operating fluids are to be removed from the machine. The local laws and regulations are to be obeyed for the storage or the disposal of all operating fluids.

12.5 Cleaning the Machine

Make sure that the machine is cleaned before the decommissioning. For more information about how to clean the machine, please refer to chapter Maintenance of this manual.

12.6 Decommissioning

Put the machine into a safe state.

Disconnect the power supply.

Protect the machine from misuse.

Secure the machine in such a way that when it is idle there is no risk of injury to any person.

The machine-specific regulations with regard to decommissioning must be observed.

The machine must be suitably protected against soiling and corrosion.

The regulations and operating procedures specific to the machine are listed in the Chapter "Decommissioning and Storage". These regulations, and particularly the safety regulations, must be adhered to most exactly.

12.7 Putting Back into Operation

All elements affecting safety must be tested to ensure that they are in perfect operating condition.

The machine-specific regulations with regard to re-commissioning must be observed.

The regulations and operating procedures specific to the machine are listed in the Chapter "Commissioning". These regulations, and particularly the safety regulations, must be adhered to most exactly.

12.8 Safety Precautions

12.8.1 Safety Precautions during Dismantling

When tackling dismantling jobs it is necessary to take suitable safety precautions.

Switch off main switch Q10 and secure with padlock.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

12.9 Take the Machine Out of Service

1. Disconnect the power supply.
2. Secure the machine.

.....

- 3. Protect the machine from contamination and corrosion.

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13 Disposal of the Machine

This chapter contains the information about the disposal of the machine after the service life end of the machine. When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

13.1 Disposal

After the decommissioning of the machine, the local environmental laws and specifications to discard the machine equipment are to be obeyed.

The disposal includes:

- Reusability
- Recycling
- Waste disposal

The operating materials of the machine such as oil or batteries must be correctly disposed.

13.2 Materials

The user must divide materials in relation to the material group and give the machine parts to the correct collection point:

- Steel
- Copper
- Brass
- Rubber
- Electronic waste
- Cast iron
- Glass
- Plastics
- Liquid materials
- Hazardous waste

13.3 Owner or Operator Responsibility

The machine owner or the operator is responsible for the disposal of the machine.

For the disposal of the assemblies that were not made by Rieter, the related instructions that are given in the supplier documentation are to be obeyed.

13.4 Safety Regulations



WARNING

Falling machine components!

Dangerous injuries by crushing of body parts

- ▶ Do NOT lift heavy components manually.
- ▶ Always use a safe and applicable lifting device.

13.5 Discarding the Machine

When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

13.6 Notice to the Manufacturer and the Authorities

Before the machine becomes discarded, the user must tell the related disposal authorities and the government agencies.

Tell the machine manufacturer – Rieter – about the disposal of the machine.

E-mail: info@rieter.com

13.7 Disposal

In the case of the machine being conclusively removed from operation, the legal regulations of the relevant country should be observed.

This applies in particular to:

Re-usability

Recycling

Waste disposal

It must be ensured that the fuel remaining in the machine is disposed of in accordance with regulations.

Fuel such as oils, grease and batteries.

The regulations and operating procedures specific to the machine are listed in the Chapter "Disposal of the Machine". These regulations, and particularly the safety regulations, must be adhered to most exactly.

13.8 Disposal of Waste

13.8.1 Accident Prevention

Comply with the instructions for occupational health and safety.

13.8.2 Operating Materials

1. Drain the oils and coolants.
2. Properly dispose of the operating materials.

13.8.3 Removal

The tasks must only be carried out by trained specialists.

1. Prepare the machine for transport.

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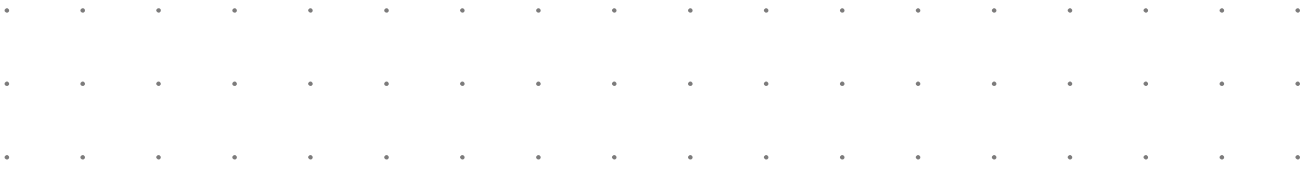
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